

Effectiveness of Affordances Used in English Study Places by English Nonmajor Students

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Abstract

This study investigates how the places students use for English learning relates to improvement in their English. Photo surveys (LINE and interview) involving 21 English nonmajor students at a university in Kyoto, Japan, were conducted. The affordance theory was employed to analyze the collected data (photos of the study places and comments on the places submitted from 21 participants, and interviews with 8 participants out of 21). Results showed that the places with ecological elements and those with cultural elements do not offer the same level of certainty to have the students perceive and pick up the affordances beneficial to their act of English study, and suggested the possibility that perceiving and selecting the right affordances for studying in more effective places will improve students' English grades (TOEIC scores).

概要

本研究では大学生の英語学習場所と学びとの関わりを調査し、特定の学習場所における大学生の学習行為が、英語力習得にどのように作用するか考察を試みる。調査手法には PHOTO SURVEY を採用し、21名の非英語専攻の学生から学習場所の写真、場所に対するコメントを収集し、内8名には半構造化インタビューを行った。データ分析の際には生態心理学のアフォーダンス理論を理論の枠組みとして利用した。結果として、生態的要因を持つ場所と文化的要因を持つ場所では、大学生が英語学習に有効なアフォーダンスを認識し、ピックアップ利用できる保証の度合いが異なることや、英語学習にプラスのアフォーダンスをピックアップし、適切な場所で学習行動を起こす学生は、英語

学習成果 (TOEIC スコア) が高くなる傾向が観察された。

Keywords: English learning environment, English proficiency, Gibson affordance theory, beneficial affordance, photo survey

1. Introduction

Learning environments provided by higher education institutions are designed to support students' academic development by stimulating their motivation to learn. While many factors can be considered to impact students' learning, learning environments are sure to be one of those factors to be considered. "Environments" in this study include places, facilities, equipment, and people existing around oneself. The relationship between the environment and animals/humans has been discussed and demonstrated through the theory of affordances. However, there have not been many cases where the learning environments of university students are studied from the viewpoint of affordances. Focusing on and analyzing the students and their learning environments could improve the facility designs for better learning.

Of various types of "study" or "learning" in a university, this article focuses on English learning. In Japan, English education is now a matter of such an urgent concern that the government has issued several white papers to promote it. The Japanese Ministry of Education, Culture, Sports, Science and Technology (MEXT) encourages the efficient use of Assistant Language Teachers (ALTs); Information and Communication Technology (ICT) for English teaching; and English proficiency exams, such as the Test of English as a Foreign Language (TOEFL), Test of English for International Communication (TOEIC), and test in practical English proficiency called EIKEN (Japan's most widely recognized English language assessment), by setting recommended minimum scores for English learning (Council for Higher Education, 2000; MEXT, 2003; MEXT, 2011).

However, little progress has been witnessed so far. According to a press release by The Institute for International Business Communication (IIBC, 2018), Japanese test-takers stood at 39 of 47 countries in the Test of English for International Communication (TOEIC) in 2018, scoring 517 points on

average out of a possible 990. As of 2019, Japanese English proficiency is still rated as “low proficiency,” ranking 49 of 88 countries in the sixth edition of the English Proficiency Index (Education First EPI). Naturally, educational institutions are expected to deal with and break through this situation. To research on how students perceive and use their learning environments, and how much positive impact they receive from the environments can be one of the possible resolutions for it. This will be a highly concerning and significant matter in social as well as academic contexts.

The theory of affordances that will be used as a theoretical framework in this article has been widely applied in various fields to examine the relationship between the environment and humans. This theory makes it possible to discuss what the environments offer English learners, what the learners perceive, and why they end up using particular environments to study and learn English. Moreover, there will be discussions on whether the action supported by the environment can impact students’ English learning positively or negatively. This study investigates how the places students use for English learning relate to improvement in their English and suggests some steps to consider for a better English learning environment.

2. Theoretical Framework

2.1 Theory of affordances

The theory of affordances was completed by James J. Gibson (1904-1979) in the 1960s. Gibson is an “American psychologist whose theories of visual perception were influential among some schools of psychology and philosophy in the late 20th century” (Doorey, 2019). He admits, “For visual perception, the information is obviously in light” but proposes “ecological optics” that “differ from physical optics, from geometrical optics, and also from physiological optics” (Gibson, 2015, p. 42). He also values the importance of the ecological approach to an environmental perception by animals/humans. He strictly defines the term “environment,” which is “the surroundings of those organisms that perceive and behave, that is to say, animals” (p. 3) and explains “the environment is all these various things—

places, surfaces, layouts, motions, events, animals, people, and artifacts that structure the light at points of observation” (p. 59).

Furthermore, he believes “the words animal and environment make an inseparable pair,” and an animal is “a perceiver of the environment and a behavior in the environment” (Gibson, 2015, p. 4). Gibson’s coined word “affordance” is “what it offers the animal, what it provides or furnishes, either for good or ill” (p. 119). Animals perceive the affordances in the environment, which lead them to the following actions, and “visual perception serves behavior, and behavior is controlled by perception” (p. 213). Affordances should be distinguished from values because “the affordance of something does not change as the need of the observer changes” and “is always there to be perceived” (p. 130).

However, the “environment does not communicate with the observers who inhabit it,” and “it is entirely up to us to perceive it” (Gibson, 2015, p. 57). Sometimes, man has “changed the shapes and substances of his environment” in order to “change what it affords him” (p. 188). According to Gibson, animals and humans “can do place-learning. Observers can go to the places in their environment that have affordances for them” (p. 188). “Toys, pictures, and words are aids to perceiving, provided by parents and teachers,” and the “extracting and abstracting of the invariants that specify the environment are made vastly easier with these aids to comprehension” (p. 246). By perceiving affordances in environment in this way, animals including humans can “move as to obtain beneficial encounters with objects and places and to prevent injurious encounters” (p. 222).

2.2 Theory of Affordances Applied in Various Fields

Sadler and Given (2007) applied the theory of affordances by Gibson to a learning environment, a university library. They conducted “in-depth, semi-structured qualitative interviews” with graduate students and librarians at the University of Alberta, and analyzed the data by using the affordance theory in 2004-2005 (Sadler and Given, 2007, p. 119). They assigned each affordance found in the environment of the library to one of the three categories: “intended and perceived,” “intended but not perceived,” and “perceived but not intended” (p. 120). For instance, while a library catalogue is intended

to be used by librarians and perceived by users, an information literacy instruction is intended to be used by librarians but not perceived by users.

There is an opinion that the affordance theory used by Sadler and Given (2007) for their study is “a simplified version for creating some interfaces of everyday appliances such as computers,” and “they used the concept of affordance as a mere tool without going into the essence of it” (Tsuboi, 2008, p. 6). Gibson states that the affordance “does not change as the need of the observer changes” and “is always there to be perceived” (Gibson, 2015, p. 130). Strictly speaking, the classification of affordances by Sadler and Given (2007) seems to be in conflict with Gibson’s theory (2015), since the affordances should be always there regardless of library’s intention.

Nevertheless, Gibson’s affordance theory “has been influential in a variety of areas” (Yashiro, 2009, p. 3) such as environmental psychology, behavioral science for environment, linguistics, philosophy, product design, architecture, and so on. Gibson knew that people in other fields would need a theory like the affordance theory, mentioning that “architects and designers know such facts” that the environment affords animals, “but they lack a theory of affordances to encompass them in a system” (Gibson, 2015, p. 128).

However, it is hard to apply Gibson’s affordance theory to environments with educational and cultural meanings, such as universities, for the following reasons: focusing on the only natural environment, Gibson states that even if man “has changed the shapes and substances of his environment,” it is “not a new environment but the same old environment modified by man”; so, it is a mistake “to separate the natural from the artificial” as well as “to separate the cultural environment from the natural environment” (Gibson, 2015, p. 122). Therefore, the affordance theory tends to be arranged in many cases where it is applied to other fields. Norman applied it to a field of industrial design, stating, “I appropriated affordance to use in design in a manner somewhat different than its inventor had intended...” (Norman, 2013, p. 14), and defined an affordance as “a relationship between the properties of an object and the capabilities of the agent that determine just how the object could possibly be used” (p. 11). Norman underlined its difference from the original theory by pointing out that Gibson’s affordances “exist even if they are not visible. For designers,

their visibility is critical: visible affordances provide strong clues to the operations of things” (p. 13) and “designers need to provide these clues.” (p. 14). Gibson’s theory does not provide the term for “clue”; Norman uses the term “signifier” from the field of semantics as “the signaling component of affordances” (p. 13). For Norman, “affordances determine what actions are possible” (p. 14), and “signifier refers to any mark or sound, any perceivable indicator that communicates appropriate behavior to a person” (p. 14).

Yashiro applied the affordance theory to evaluate the quality of landscapes and suggested an idea similar to Norman’s affordance and signifier (Yashiro, 2009, p. 6). At the same time, he pointed out the importance of distinguishing the ecological factor, that is “meaning as environments to encourage the actions based on affordances,” from the cultural factor, that is “meaning given by verbal expressions” (p. 6). This is another example of an arranged version of Gibson’s affordance theory, although it contradicts Gibson’s idea, “there is only one environment” (Gibson, 2015, p. 129).

Nishiura (2020) employed an arranged version of Gibson’s theory, using the concept of signifier by Norman and the concept of the ecological and cultural factors by Yashiro to analyze the university students’ perception of English learning environments. Table 1 is the summarization of the definitions of affordances and signifier (2020, p. 91). The definition of affordances in this article follows Nishiura’s in Table 1: “what the environment offers the students who study English, what it provides or furnishes, either for good or ill.”

Table 1 *Definitions of Environment, Affordance, Signifier*

	Environment	Affordance	Signifier
Gibson	<ul style="list-style-type: none"> - “the surroundings of those organisms that perceive and behave, that is to say, animals” - even if man “has changed the shapes and substances of his environment,” it is “not a new environment but the same old environment modified by man”; so, it is a mistake “to separate the natural from the artificial” as well as “to separate the cultural environment from the natural environment” 	<ul style="list-style-type: none"> - “what it offers the animal, what it provides or furnishes, either for good or ill” - “the affordance of something does not change as the need of the observer changes” and “is always there to be perceived” 	—
Norman	—	<ul style="list-style-type: none"> - “affordances determine what actions are possible” - While Gibson’s affordances “exist even if they are not visible, for designers, their visibility is critical: visible affordances provide strong clues to the operations of things” 	<ul style="list-style-type: none"> - “signifier refers to any mark or sound, any perceivable indicator that communicates appropriate behavior to a person”
Yashiro	—	<ul style="list-style-type: none"> - “ecological factors to encourage the actions, including virtual actions (meanings or values for actions), that animals can pick out in a relationship with their surroundings” - “concept of <i>miwake</i> 身分け” which corresponds to the somatic images = ecological phenomena 	<ul style="list-style-type: none"> - “<i>kotowake</i> 言分け (verbal images, nonverbal images)” = cultural phenomena - “The impressions people receive from landscapes can be greatly affected by assigning some meanings to them with words or phrases.” - “some words that can make the affordances perceivable”
Nishihara	<ul style="list-style-type: none"> - university students’ English learning environments (including facilities, equipment, and staff) - distinguishing spaces for actions (= ecological factors) from spaces with meanings based on the assigned words (= cultural factors) 	<ul style="list-style-type: none"> - what the environment offers the students who study English, what it provides or furnishes, either for good or ill. 	<ul style="list-style-type: none"> - <i>kotowake</i> 言分け (verbal images, nonverbal images) = cultural phenomena - meanings based on the assigned words (= cultural factors)

3. Research Methods

3.1 General Description of Survey

A photo survey was employed as a research method in this study, recruiting participants from English nonmajor sophomores taking the required English classes at a university in Kyoto, Japan. A photo survey is also called photo voice or photo-elicitation and is a qualitative method. It is “a type of visual research method that makes use of photo-elicitation in a semi-structured interview. Photo-elicitation was first described by Collier in 1957 as the process where photographic images are used to stimulate and guide the interview” (Vieira and Antunes, 2014, p. 498). Traditional methods such as questionnaires “sacrifice the richness of information in order to obtain consistent and statistically meaningful conclusions on social preferences” (p. 497), but a photo survey covers such issues.

On the other hand, as Vieira and Antunes pointed out, a photo survey has a disadvantage that it “can require a lot of time from the participant. The more time required from participants, the less is the likelihood of citizens participating” (Vieira and Antunes, 2014, p. 499). Therefore the process of recruiting participants for this study was carefully arranged in steps. Table 2 shows the complete process (Steps 1-4), and this article covers the results of Steps 3 and 4.

The targeted university was a private university in Kyoto, Japan, and survey participants were students not majoring in English. This university comprises 12 faculties with 13,591 students (as of May 2019). Majority of the students are Japanese, but they have about 200 international students from other countries. Some of the main facilities on campus include the university library, Learning Commons (LC), and Global Commons. Table 3 shows the basic description of these three facilities.

At this university, as part of Faculty-Wide General Education Courses, non-English major students (about 96% of the whole) must take eight credits in required English classes in their first and second years, that is, one TOEIC class (with a Japanese instructor) and one English communication class (with a native English-speaking instructor) per semester for two years. Classes are held weekly for 90 minutes each, and one class (90 minutes)

counts as two hours per week. The targeted classes for this study are TOEIC classes and students' TOEIC (Listening & Reading) scores are used to measure their English proficiency, although speaking and writing abilities are not covered. There are more than 20 Japanese instructors for TOEIC classes.

Table 2 *Survey Schedule*

No	Research period	Method	Participants	Collected Data
1	Last days of spring semester 18-24/July/2018	Questionnaire A	114 students (7 classes) taking required English classes who attended the last day of the spring semester	Commuting time, usage frequency of places for English study, free descriptions about the ideal environment for English learning
2	Last days of fall semester 15-21/Jan./2019	Questionnaire B	76 students (7 classes) taking required English classes who attended the last day of the fall semester	Opportunities to study English, aimed proficiency level of English, places found to be effective for English learning, elements of the ideal environment, free descriptions on places used for English learning
3	Toward the end of fall semester 14/Dec./2018- 21/Jan./2019	Photo survey (LINE)	21 students (7 classes) who agreed to participate in photo survey (LINE) and signed a survey consent form before conducting Questionnaire A	Photos of places for English study, Comments on the following items: A. Where is the place in the photo?/B. Kind of English study/C. Purposes of the study/D. Reasons for choosing the place/E. Complaints about the place/F. Study date and time
4	Toward the end of fall semester 24/Jan./- 8/Feb./2019	Photo survey (Interview)	8 students of 21 photo survey (LINE) participants who agreed to participate in the interview	Semi-structured interview based on the submitted photos and comments from the participants

Although they basically use the same textbooks and follow the same class schedule shown in the shared syllabus, the teaching methods, homework, and quizzes they use are different.

To exclude the influence from those differences among instructors, the

research participants were recruited from classes taught by the same instructor. 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 in which students who achieve a certain TOEIC score during the spring semester can be exempted from classes during the following semester.

Before conducting questionnaire A, students in the targeted classes were given the explanation on the purpose of the study, protection of personal information, and safety managerial strategy. Particularly, it was stressed that student's ID numbers will be immediately deleted as soon as they are linked to the questionnaire data and TOEIC scores so that the data are anonymous. The students who agreed signed the consent form. At the same time, a brief explanation on the photo survey at the end of fall semester was provided; the participants will be asked to take photos of the places where they study English for three to four weeks, and send them to the researcher with some comments on the places through LINE (a communication app which allows you to send free messages).

Table 3 *General Description of Facilities*

Facilities	Roles and supplied services	Location on campus
University library	<ul style="list-style-type: none"> - Learning spaces focusing on learning support services by using library materials (reference services, information literacy education, PC room, etc.) - 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 that 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"> - In the center of 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 - 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 foreign cultures and languages 	<ul style="list-style-type: none"> - In the center of campus - Easy to visit between classes

Students interested in participating in the photo survey were asked to tick the “Agree” box on the consent form. The explanation of the following interview was not made at this moment. Usually, a photo survey includes the interview; therefore, the method so far should be called photo survey (LINE). On the last day of the photo survey (LINE), the 21 participants were asked if they could participate in the interview based on the photos and comments they provided through LINE, and 8 of them agreed to cooperate.

As mentioned above, this article covers only the results of the photo survey (LINE + interview) but uses a part of the data from questionnaires to supplement the information on participants in the photo survey. The surveys were conducted after being officially permitted by the university’s Liaison Office of Research Organization.

3.1.1 Participants’ Attributes

Table 4 shows participants’ majors and TOEIC scores as of spring semester. TOEIC scores as of fall semester will be shown later in the results section. According to the answers to questionnaire B in fall semester, it can be assumed that most of the 21 participants do not have many useful opportunities for learning English other than the required classes at the university; 12 selected “Watching films in English and listening to music in English for fun,” 5 selected “No opportunities at all other than the required English classes,” 2 selected “Taking an elective English class besides the required,” 1 answered “Looking at English vocabulary books,” and 1 answered “Having a conversation with a friend from English speaking country.” As for their aimed English proficiency, many of them seem to have practical goals with fairly high motivation; 8 selected “To be able to have communication with friends or travelers from English speaking countries,” 6 selected “To achieve the aimed scores of English proficiency tests, such as TOEIC, as useful qualifications for being employed getting promotion,” 5 selected “To be able to communicate in English when going on a trip abroad without any troubles,” 1 selected “To pass the required English class at the university,” and 1 selected “To be able to enjoy films and music in English without Japanese subtitles.”

Table 4 *Participants' Attributes*

LINE	Inter- view	Major	Gender	TOEIC score (as of spring)		
				L	R	Total
L-1	I-1	Chinese, Asian Languages, Foreign Studies	F	200	230	430
L-2	I-2	Economics	M	160	170	330
L-3	—	Business Administration	M	225	125	350
L-4	—	Business Administration	F	325	165	490
L-5	I-3	Accounting and Finance, Business Administration	F	170	320	490
L-6	—	Social Management, Business Administration	F	185	130	315
L-7	—	Law	M	175	125	300
L-8	—	Law	M	250	145	395
L-9	I-4	Law	F	280	150	430
L-10	—	Interdisciplinary Studies in Law and Policy	F	230	155	385
L-11	I-5	Intercultural Studies, Cultural Studies	F	235	195	430
L-12	—	Sociology	F	230	150	380
L-13	—	Sociology	F	225	135	360
L-14	I-6	Sociology	M	180	285	465
L-15	—	Sociology	F	255	165	420
L-16	—	Sports and Health Sciences, Sociology	M	142	200	342
L-17	—	Computer Science and Engineering	F	205	170	375
L-18	I-7	Computer Science and Engineering	M	220	260	480
L-19	—	Animal Medical Sciences, Life Sciences	M	265	100	365
L-20	—	Animal Medical Sciences, Life Sciences	F	210	100	310
L-21	I-8	Bioresource and Environmental Sciences, Life Sciences	M	190	230	420

3.2 Photo Survey (LINE)

Although the participants of the photo survey (LINE) signed and submitted the consent form at the end of spring semester, the researcher once again explained the purpose of the study and protection of personal information. After making sure there are no problems, the following instruction was handed out, and the participants sent photos and comments based on this instruction.

1. Please scan the QR code, and add the account “photo-survey” to your

LINE.

*This account is only for collecting data. No personal messaging will be exchanged.

2. Please send the photos of the places for English study whenever you study English with some comments on the items A-F below.

*No need to take extra time to study English for this survey. Just take photos when you study on usual timing.

- A. Where is the place? (1. Own room, 2. University library, 3. Global Commons, 4. Learning Commons, 5. Diners, 6. Trains/buses, 7. Other places)
- B. What type of study? (1. Speaking aloud practice, 2. Listening practice, 3. Vocabulary and grammars, 4. TOEIC practice tests, 5. Other types)
- C. Purpose of English study / D. The reasons for choosing the place
- E. Complaints about the place / F. Date and time of study

3.3 Photo Survey (Interview)

Eight out of the twenty-one participants of the photo survey (interview) agreed to cooperate. Semi-structured interviews were conducted one by one in the researcher's office on the day and time convenient for each participant. Every interview lasted approximately 20-30 minutes. After being asked questions based on the photos and comments submitted, the participants were given few more fixed questions like "Are there any places where you studied English but did not have a chance to take photos?" and "Do you think you choose the places depending on a type of English study?" The conversations were recorded with an IC recorder after obtaining permission from participants.

4. Results

4.1 Photos and Comments - Photo Survey (LINE)

There were 103 submissions from 21 participants during the research period. The total number of photos was 136, and 1-3 photos were received per one submission. The samples of the photos submitted are shown in Figure 1.

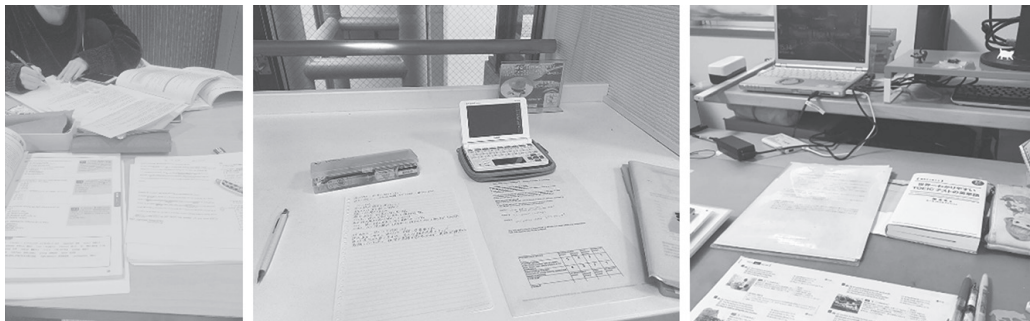


Figure 1 Some samples of the photos submitted via LINE. From left to right: studying in a diner (taken by L-5), the school cafeteria (taken by L-12), and his/her room (taken by L-15).

The types of English learning posted with the photos are shown in Table 5. “TOEIC practice tests” seems to be the most popular type of English study, but it is only because the participants are taking TOEIC classes. Since TOEIC includes both the listening and reading sections, naturally those who address TOEIC practice tests are likely to study both listening and reading skills. It can be assumed that fewer students are eager to study reading comprehension during the research period, because TOEIC class in fall semester mainly covers listening sections. Some participants listed “homework” as a type of English learning, but they did not give any further details about it. The most selected places for every study type were “own room,” followed by “empty classrooms.” Table 6-7 shows the reasons for choosing the places, assigned into seven categories: mental, location, time, habitual, learning style, equipment, and type of study.

On the other hand, there were fewer descriptions of complaints about the place probably because they choose the places themselves. The elements of complaints were extracted and organized into Table 8, but the places without any descriptions of complaints are omitted from the Table. It is possible to construe that the reasons for choosing the places in Table 6-7 correspond to the positive affordances for English learning perceived by the students, and that the dissatisfied elements in Table 8 correspond to the negative affordances perceived by the students.

Table 5 *Study Places for a Certain Type of English Learning*

Study Place	TOEIC practice tests	Reading aloud	Listening	Vocabulary, grammars	Reading comprehension	Home work	Composition	Total
Own room	27	18	9	6	2	9		71
Living room	4		1			1		6
University library	4					2		6
Global Commons			1					1
Learning Commons	2	3	1	1				7
Empty classrooms	6	8	4	1	2	1	1	23
Student lounges	2			2		1		5
Diners on campus	2	1		1		2		6
Diners outside campus	4		1	2				7
Train, bus, car				2				2
Workplace			3					3
Total	51	30	20	15	4	16	1	137

Table 6 *Reasons for Choosing Places (Outside Campus)*

Study Place	Reason Types	Reasons
Own room	Mental	Relaxing, Being at ease, Easy to be focused
	Location	At home/Easy to get started on study
	Time	No other places to study in the middle of night
	Habitual	Most familiar place to Study/Basically study in my own room from habit
	Learning style	Can speak aloud/No obstacles when practicing speaking or listening with some noises
	Equipment	Available equipment like wide desk, PC, Wi-Fi, speaker, CD player/Can adjust the room temperature
Living room	Mental	Relaxing
	Location & time	Being silent at night/Easy to be focused
	Equipment	Wide desk/Maintaining the temperature (warm)
Diners outside campus	Mental	Relaxing/Easy to be focused
	Equipment	Being able to sit alone
	Learning style	Can study with friends
Train, bus, car	Type of study	Study with vocabulary books during transportation

Table 7 *Reasons for Choosing Places (On Campus)*

Study Place	Reason Types	Reasons
Empty classroom	Mental	Easy to be focused by myself in the silence
	Location	Classroom for the next class/On the way to the next class
	Time	Lunch break/Spare time between classes
	Type of study	Can do Pronunciation and listening practices by reading aloud with no one attended nearby
	Equipment	Can adjust air conditioner
Library	Type of study	Can do listening practice by using PC
	Equipment	Available PC/silent environment
Global Commons	Equipment	Can charge the battery of mobile phone
Learning Commons	Type of study	Easy to practice pronunciation with many people around making some noises
	Equipment	Wide desk
Diners on campus	Location & time	Spare time between classes/Silent when it is not crowded
	Equipment	Wide table/Spacious place
Student lounges	Location	Near the classroom for taking the examination
	Time	Spare time between classes
	Learning style	Can study with friends

Table 8 *Dissatisfied Elements*

Study Place	Dissatisfied Elements
Outside Campus	
Own room	Too relaxing / Many distractions / Difficult to be focused / Noisy (family, TV, washing machine, etc.) / Unsatisfactory equipment (No desks, no chairs / Cold, hot / Not spacious enough)
Diners	Noises from people around / Not allowed to stay for long time
On Campus	
Empty classrooms	Noisy (people around) / Difficult to pronounce or read aloud because people might hear you / Unsatisfactory equipment (narrow space on the desk, low chair, etc.)
Library	Cannot pronounce or read aloud
Global Commons	Noisy (people around)
Learning Commons	Noisy (people around) / Too hot
Diners	Noisy (people around) / Difficult to pronounce or read aloud because people might hear you
Lounges	Too relaxing / Unsatisfactory equipment (No desks/Cold)

4.2 Photo Survey (Interview)

The recorded interviews were transcribed, and Table 9 shows the summaries of each interview. From the summaries, participants I-1 and I-2 do not perceive or care much about either positive or negative affordances for English learning in their study places because they think that what matters for studying is motivation and him/herself, not the environment around. I-3 perceives some positive or negative affordances for English learning in the places and actively moves to other places with more effective affordances, if necessary. I-4 perceives some affordances in the environment and tries to maintain the affordances beneficial for English learning in certain selected places but would not choose to move to other places in order to avoid the negative affordances beyond his/her control. I-5 perceives some affordances in the environments but would not take any actions even on noticing some affordances that are not beneficial for English study. I-6 not only perceives some affordances but also picks up the positive affordances to actively move on to study mode, and changes the places to avoid negative affordances, if necessary. I-7 also perceives some affordances, picks up the beneficial affordances, and use different places depending on the affordances perceived. I-8 actively and strongly perceives some affordances in the environments, picks up the beneficial affordances for English study, and clearly differentiates the use of the places depending on the affordances provided.

Table 10 shows the summaries of each participant's perception on affordances, and their compared TOEIC scores between spring semester and fall semester. The Standard Error of Difference (SEdiff) for total TOEIC scores is ± 70 (Listening ± 35 , Reading ± 35), which is 68% confidence level, and ± 138 (Listening ± 69 , Reading ± 69), which is 95% confidence level. By using this as a scale to see the progress in English, the participants are categorized as follows (based on Melvin, 2014: 16):

1. "Achiever" whose progress falls into the range of $+70$ (Listening $+35$, Reading $+35$)
2. "High Achiever" whose progress falls into the range of $+138$ (Listening $+69$, Reading $+69$)
3. "Low Achiever" whose progress falls into the range of either -70 (Listening

Table 9 *Summaries of Interviews*

Inter-viewee	Summary
I-1	My regular study place is my own room. In my opinion, what matters is not the place but one's motivation. I lose my tension when wearing my loungewear at home. Though there are distractions (YouTube, sweets, LINE, games, etc.) in my room, I won't take time to change my clothes and go out to the places suited for study. At the university, I sometimes go to Global Commons but mainly just to charge the battery of my mobile. Sometimes, I spend time memorizing some words during my two-hour commuting time on trains. At the last minute, when I'm in the situation wherein I have to do it, I believe I can study anywhere even with distractions around me.
I-2	My regular study place is my own room. I'm easily influenced by the environment around me. Because my motivation easily changes even by my sitting posture, I study in my own room, which is the most accustomed environment for me. I'm the kind of person who starts studying after organizing the place. Sometimes, I start cleaning my room to study and end up cleaning all day. Sometimes, I go to the university library but only in exam week. I can't study at diners because there are unusual things that will catch my eye. Silence is important when studying, but I believe what matters the most is yourself.
I-3	I'm too relaxed and have no tension in my room because there are many distractions (TV, LINE, manga, etc.) in my room. In my room, I realized the study break is likely to be longer than study time. In such case, I go out to a diner nearby to put myself into study mode. I want to sleep at night, so I try to make use of small pockets of time, such as commuting time on the train and a break time at workplace, to study efficiently. On campus, I'm not particularly aware of its learning effects of Global Commons, but I sometimes use it due to its accessibility and availability of a seat.
I-4	My regular study places are my own room and empty classrooms. I recognize my own room as my "study place. I have organized my room for studying, so there are no distractions in my room. However, I'm often asked for help for family chores, so I have to stop studying for that reason. Because I won't be interrupted by anything in the middle of night, sometimes, I take a short nap in the afternoon to stay up late at night for studying. Unfortunately, the heating system in my room has been out of order, and it's really cold. At the university, I use empty classrooms because few people are around and the room temperature can be freely adjusted. For reading aloud practice, I use my own room or empty rooms because I feel embarrassed if somebody hears me.
I-5	My regular study place is my own room. I don't expect much study effects, but I can be relaxed in my room. I can be focused because there is nobody around me and it's quiet. But my concentration doesn't last for a long time because there are distractions such as foods, smart phones, and PC in my room. I used the university library for TOEIC reading class during spring semester but I didn't go there for preparing for the listening class (fall semester), because no personal conversations are permitted in the library. Learning Commons and Global Commons are too open for me. I may go there if more personal booths are available. I used some cafes and diners to do listening practices during fall semester but I had to buy some drinks, sometimes it was noisy, and sometimes I was not allowed to stay for long.
I-6	I can stay relaxed at home. I get tense outside because it's not my territory. There is nothing in my room that can distract me. In my room, I either study or daydream. I leave my smart phone in the living room and don't touch it when I study. The only one problem is that there are railroad tracks just in front of my room, and sometimes my concentration is cut off when a train passes by. The places I study besides my room are the university library or Global Commons. When I have to tackle with long practice tests, I choose to go to the quiet library where I can easily be focused. The reason I use Global Commons is not because it's effective for studying but because it's located near the next classroom.
I-7	Usually, I study English in my room, empty classrooms, and on a train. No interruptions will occur in my own room. I can study even at midnight, and read aloud and play sound for my listening practice with stereo components. Memorizing words with a vocabulary book can easily be done anywhere, so I do it on a train for 5-10 minutes every day. Empty classrooms are also suitable for listening and reading aloud practice because the room temperature can be adjusted freely and few people are around. I usually get distracted by people walking around in the library, and can't concentrate even in the private study room because I can't stay for more than two hours by regulation and feel rushed.
I-8	I recognize my own room as a place for being relaxed, so I don't study in my room. Basically I try to finish all assignments or any study at places on campus. But one exception is that I use my room only when I have to practice speaking aloud, because I don't want to be heard by people around. I use the PC room in the library for English reading comprehension, and use the reading room or the study carrel for listening practice. The library is quiet and well-equipped with PCs. Empty classrooms can be noisy sometimes, but I use them between classes. Lounges can be cold sometimes, but I use them for study as a routine.

Table 10 *Affordance Perception and TOEIC Score*

	Perception of Affordances	End of Fall			Progress			Progress Type
		L	R	T	L	R	T	
I-1	Doesn't perceive or care much about either positive or negative affordances, thinking what matters for English study is his/her motivation and him/herself	205	205	410	5	-25	-20	NA
I-2	Doesn't perceive or care much about either positive or negative affordances, thinking what matters for English study is his/her motivation and him/herself	165	140	305	5	-30	-25	NA
I-3	Perceives positive or negative affordances for English learning and actively moves to other places with more effective affordances, if necessary	265	190	455	95	-130	-35	LA RLA
I-4	Perceives affordances and tries to maintain the affordances beneficial for English learning in certain selected places but not likely to move to other places in order to avoid the negative affordances beyond his/her control	190	180	370	-90	30	-60	LLA
I-5	Perceives affordances but is not likely to take any actions even on noticing that there are some affordances unbeneficial for English study	145	195	340	-90	0	-90	RLA TLA
I-6	Not only perceives affordances but also picks up the positive affordances to actively move on to study mode, and changes the places to avoid negative affordances	355	205	560	175	-80	95	LHA TA RLA
I-7	Perceives affordances, picks up the beneficial affordances, and uses different places depending on the affordances perceived	310	205	515	90	-55	35	LHA RLA
I-8	Actively and strongly perceives affordances, picks up the beneficial affordances for English study, and clearly differentiates the use of the places depending on the affordances provided	255	325	580	65	95	160	LA RHA THA

Note. NA = Non-Achiever; LA = Listening Achiever; RA = Reading Achiever; TA = Total Achiever; RLA = Reading Low-Achiever; LLA = Listening Low-Achiever; TLA = Total Low-Achiever; LHA = Listening High Achiever; RHA = Reading High Achiever; THA = Total High Achiever

-35, Reading -35) or -138 (Listening -69, Reading -69)

4. "Non Achiever" whose scores do not fall in any range

To be categorized as "Achiever" or "High Achiever," one does not have to be an "achiever" in all scores. If a subject is an "achiever" in reading but a "low achiever" in listening, he/she will be categorized as "achiever."

5. Discussion

5.1 Places with Ecological and Cultural Factors

By looking at the reasons for choosing places (Table 6-7) from the photo survey (LINE), the affordances in English learning environment offered to the students will be discussed. First, the study places are categorized into two groups, as per Yashiro's concept (2009, p. 6): (1) places with ecological elements, that is "meaning as environments to encourage the actions based on affordances" (places for action, places for imaginary action, places to live, habitat) and (2) places with cultural elements, that is "meaning given by verbal expressions" (places within cultural frameworks such as some rules, manners, social customs, and common knowledge). In the context of places for English learning, places like "my own room," "living room," "diners (outside campus)," and "trains" in Table 6 can fall into the category of places with ecological elements. On the other hand, places such as the university library, Global Commons, Learning Commons, and classrooms in Table 7 are provided by the university with a clear purpose: "for studying." In this sense, they are the places with cultural elements. As for the diners and lounges on campus in Table 7, while they can be used as a study place, they are also places for action and to live by offering spaces for resting and eating; therefore, they are categorized into places with cultural and ecological elements.

While the places with ecological elements in Table 6 and 7 are chosen by the participants for the reasons of "relaxing" or "being at ease," no such reasons are found for the places in another category, which is one of the distinctive differences between the places with ecological and cultural elements.

In places with ecological elements, the user of the place should pick up the affordances by himself/herself depending on the purposes, and control his/her own actions in the environment. People who choose the place with affordances like "relaxing" naturally tend to stay in the place even when they study English. However, it does not mean that the affordances they pick up are always the right affordances, which can lead them to beneficial actions for English study. This is suggested in Table 8, which shows that

one of the popular complaints on the places is “too relaxing.” Other popular reasons for choosing “my own room” and “living room” are the reasons of time and location such as “being at home” or “no other places to study in the middle of night” (Table 6). Again, because these are not beneficial affordances particularly for English study, complaints like “distractions” and “noises” are listed in Table 8.

The students (English learners) are expected to pick up some beneficial affordances in places with ecological elements like “my own room” in order to take themselves to effective actions for studying on purpose. The subjects should be attentive to perceive positive affordances like “no obstacles when practicing speaking or listening with some noises” and “available equipment like wide desk, PC, Wi-Fi, speaker, CD player/Can adjust the room temperature” shown in Table 6.

On the other hand, places with cultural elements intentionally control the affordances by excluding the negative affordances and providing positive affordances for studying. Therefore, even if one chooses a place for the mere locational reason such as “on the way to the next class” (Table 7), there will not be a problem because most facilities on campus are designed for studying and the affordances for studying are well-controlled. A few dissatisfied elements for the facilities on campus in Table 8 are mainly due to the noises from people around or not being able to read aloud because of the people around. These are the negative affordances almost inevitable in public spaces.

5.2 Affordance Perception and TOEIC Score Improvement

Table 5 might give you an impression that fewer students would use places with cultural elements such as the university library, Learning Commons, and Global Commons, but in the nature of the research method, there is a high possibility that some of the participants did not take and submit some photos even after using certain places for English study. To handle this issue, the participants’ perception on the places and their actual use of the places were some of the big topics in the interview. The summaries of the interviews are shown in Table 9.

Each participant’s perception of affordances was analyzed and described in

a concise manner, and each participant's progress in TOEIC scores between spring and fall was categorized into four groups, which is shown in Table 10.

According to this comparison table, "non-achievers" (I-1 and I-2) whose TOEIC scores stayed almost the same for one year can be types of people who do not perceive or care much about either positive or negative affordances in their study places because they think your motivation is what matters, not the environment around. I-4 who was categorized as "low achiever" in listening score is a type of person who perceives some affordances in the environment and tries to maintain the affordances beneficial for English learning in certain selected places, but would not choose to move to other places in order to avoid the negative affordances beyond his/her control. I-5 who was categorized as "low achiever" both in reading and listening scores is a type of person who perceives some affordances in the environment, but would not take any action (rather stay in comfortable places) even on noticing that there are some affordances not beneficial for English study. Those who are categorized as "achievers" or "high achievers" in one of the three scores are I-3, I-6, I-7, and I-8. All of them perceive some affordances and pick up the beneficial affordances for English study, which can lead them to more effective study postures. Especially, I-8, who is categorized as an "achiever" in listening, a "high achiever" both in reading and total scores, actively and strongly perceive affordances, picks up the beneficial affordances for English study and clearly differentiates the use of the places depending on the affordances provided.

6. Conclusion

This study reveals that places with ecological elements and those with cultural elements do not offer the same level of certainty to have the students perceive and pick up the affordances beneficial to their act of English study. In places with ecological elements, perceiving the affordances beneficial for English study can be difficult unless learners themselves become attentive and conscious of the importance of the environmental affordances. On the other hand, places with cultural elements provide

learners with “signifiers” to indicate the existence of affordances beneficial for English study and maintain the controlled environment by excluding or hiding the negative affordances so that learners can easily pick up the affordances suitable for English study with minimum effort to control their behaviors and attitudes toward study.

The results of this study also suggest the possibility that perceiving and selecting the right affordances for studying in more effective places can improve the students’ English grades (TOEIC scores). It can mean that the students should rely on “motivation” or something inside oneself but also learn how to perceive the affordances beneficial for the act of studying.

Limitations of the present study include; 1. The results cannot be generalized since only one university has been studied, 2. The sample size was not large enough due to the nature of the photo survey. For the future study, a quantitative research is currently planned by using the data from a series of questionnaires to get deeper insight in the students’ perception of English learning places.

Gibson sees the perception as “an act of information pick up”, and whether perception “may or may not occur” “depends on the age of the perceiver, how well he has learned to perceive, and how strongly he is motivated to perceive” (2015, p. 50). He tells us “One can keep on learning to perceive as long as life goes on” (p. 261). If it is true, universities (including the faculty, librarians, and even tutors) should also try to perceive as many beneficial affordances as possible so that they can play a role in supporting students by providing more signifiers of the affordances. The importance of the learning environment should be recognized and taken into consideration in relation to English education.

References

- Council for Higher Education. (2000). *Higher Education Suitable for the Era of Globalization (Overview of Discussion)*. Retrieved from http://www.mext.go.jp/b_menu/shingi/old_chukyo/old_daigaku_index/toushin/1315958.htm
- Doorey, M. (2019). James J. Gibson. Retrieved from <https://academic-eb-com.ezproxy.tulips.tsukuba.ac.jp/levels/collegiate/article/James-J-Gibson/472432>
- Gibson, J. J. (2015). *The ecological approach to visual perception* (classic ed.). New York: Psychology Press.

- The Institute for International Business Communication. (2018). 2017 TOEIC® Listening & Reading Test: Scores of Test Takers and Survey Results. Retrieved from <https://www.iibc-global.org/iibc/press/2018/p098.html> (2-9-2019).
- Melvin, A. (2014). TOEIC Scores: How many points are enough to show progress? *Sophia University Junior College Division Faculty Journal*, 35, 15-23.
- Ministry of Education, Culture, Sports, Science and Technology. (2003). *The Action Plan for 'Cultivating Japanese People Who Can Use English.'* Retrieved from http://www.mext.go.jp/b_menu/shingi/chukyo/chukyo3/004/siryu/04031601/005.pdf
- Ministry of Education, Culture, Sports, Science and Technology. (2011). *Five Proposals and Specific Measures for Developing Proficiency in English for International Communication*, Retrieved from http://www.mext.go.jp/component/english/_icsFiles/afieldfile/2012/07/09/1319707_1.pdf
- Nishiura, M. (2020). Students' perception of English learning environment. *JACET Kansai Journal*, 22, 88-102.
- Norman, D. A. (2013). *The design of everyday things*. Massachusetts: MIT Press.
- Tsuboi, N. (2008). Affordance riron ni motozuku joho kodo kenkyu no kanosei (Possibility of study on information behavior based on affordance theory). *Current Awareness*, Retrieved from <http://current.ndl.go.jp/ca1651> (2-9-2019).
- Vieira, Ricardo da Silva, & Antunes, P. (2014). Using photo-surveys to inform participatory urban planning processes: Lessons from practice. *Land Use Policy*, 38, 497-508.
- Yashiro, M. (2009). Keikan hyoka niokeru affordance riron no yuyosei ni kansuru kosatsu (A Study on applicability of affordance theory in evaluating the quality of landscapes). *Journal of the Japanese Institute of Landscape Architecture*, 2, 1-10.

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