

Japanese Pharmacy Students' English Comprehension During the Pharmacy Study Abroad Program and Considerations for Effective Preparatory English Lectures

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ABSTRACT

This study used a five-point self-evaluation survey to assess the English comprehension of students participating in seven activities during the 2-week Pharmacy Study Abroad program at Kobe Pharmaceutical University in the 2014 academic year. We examined the topics and the difficulty of the English vocabulary used in the two activities that the students considered to be the most difficult. In two post-program surveys, we asked the students why they felt it difficult to understand the English spoken during those activities. On the basis of the survey results, we analyzed the factors that hindered the students from comprehending the English used in these activities. We then considered what we should teach the students before they begin the Pharmacy Study Abroad program to facilitate their English comprehension during the program.

INTRODUCTION

In the 2010 academic year, Kobe Pharmaceutical University began offering 2-week Pharmacy Study Abroad programs in Boston, Massachusetts for 3rd- and 4th-year students. The purpose of the program is to ensure that Japanese pharmacy students acquire a global consciousness by observing the roles of US pharmacists, which allows them to gain a deep understanding of pharmacy practices domestically and internationally. In this program, the students were exposed to seven different types of activities other than English conversation classes: (1) campus tours guided by pharmacy students at Massachusetts College of Pharmacy and Health Sciences (MCPHS) ; (2) interacting with MCPHS students; (3) a Boston city tour guided by an English teacher from Showa Boston, a satellite campus for Japanese students studying in Boston; (4) attending a seminar by an operating room pharmacist; (5) visiting Christopher's Haven, which is a facility for supporting families of children with cancer; (6) visiting West Roxbury Pharmacy, which is a community pharmacy; and (7) visiting Genzyme, which is a pharmaceutical company (see Appendix 1 for the program itinerary).

The students must communicate in English when they visit the campus facilities, institutions, and pharmacies, and participate in seminars during these program activities, sometimes without having access to a translator. The English spoken in each location differs in speed, accents, and lexical complexity, which may influence the students' listening comprehension. Révész and Brunfaut (2013) examined whether the difficulty of a second language (L2) listening task is affected by the linguistic complexity and explicitness of the input text, speed of delivery, and textual information characteristics.

Lexical complexity was a key predictor of task difficulty and Révész and Brunfaut (2013) identified no significant effects from speed of delivery or explicitness.

Providing effective preparatory programs is significant in order to help Japanese students prepare for the Pharmacy Study Abroad program to maximize their comprehension of the

contents of the program. Tamamaki (2015) reported the efficacy of an English e-learning system to prepare for the Pharmacy Study Abroad program. The results positively supported the efficacy of English e-learning, but the study did not report the contents that should be taught in the preparatory course.

In this study, we examined the students' listening comprehension during seven different Pharmacy Study Abroad program activities and analyzed which factors most affected their listening comprehension: i.e., speed, accents, or lexical complexity. We then considered how to provide effective preparatory programs for Pharmacy Study Abroad program.

METHODS

Participants

Thirteen students at Kobe Pharmaceutical University (5 3rd-year students, 8 4th-year students: 2 male students, 11 female students) who participated in the Pharmacy Study Abroad program in the 2014 academic year were included in this study.

Questionnaire Surveys

First Questionnaire

We conducted the first questionnaire survey after the completion of the 2-week Pharmacy Study Abroad program in 2014. In the questionnaire, the students were asked to rate their English comprehension level during the seven activities on a 5-point Likert scale (1 = they understood nothing; 5 = they understood everything) (see Appendix 2 for the questionnaire items).

Second Questionnaire

In the second questionnaire survey, we focused on the activities with the two lowest and two

highest average scores, respectively. The activities with the lowest scores were attending the operating room pharmacist's seminar and visiting Christopher's Haven, while the activities with the highest scores were the Boston city tour and visiting Genzyme. We asked the students what their reasons were for considering the seminar and Christopher's Haven activities to be difficult.

Difficulty in Comprehending the English Vocabulary

Following the second questionnaire survey, we analyzed the difficulty level of the English vocabulary used in the operating room pharmacist's seminar, where the students had expressed their lowest average level of comprehension. We conducted our analyses using Someya's (2010) Online English Vocabulary Difficulty Evaluation System and the JACET 8000 scale (JACET Basic Words Revision Committee, 2003). We also examined the proportion of medical and pharmaceutical English vocabulary among the highly difficult vocabulary used in this activity.

JACET 8000

The JACET 8000 scale is a vocabulary list compiled by the Japan Association of College English Teachers (JACET) that has been evaluated as a "scientific educational vocabulary table for Japanese learners of English" (JACET Basic Words Revision Committee, 2003) (see Appendix 3).

RESULTS

The students expressed the lowest levels of English comprehension during the operating room pharmacist's seminar followed by their visit to Christopher's Haven, a support facility for families of pediatric cancer patients (Figure 1).

Ninety-two percent of the students considered that the English vocabulary used by the

operating room pharmacist was difficult to understand, which far exceeded the percentage of the students who answered the pharmacist's English was too fast (38.5%) (Figure 2).

The students did not consider the speed or vocabulary level of the English spoken during their visit to Christopher's Haven to be significantly different.

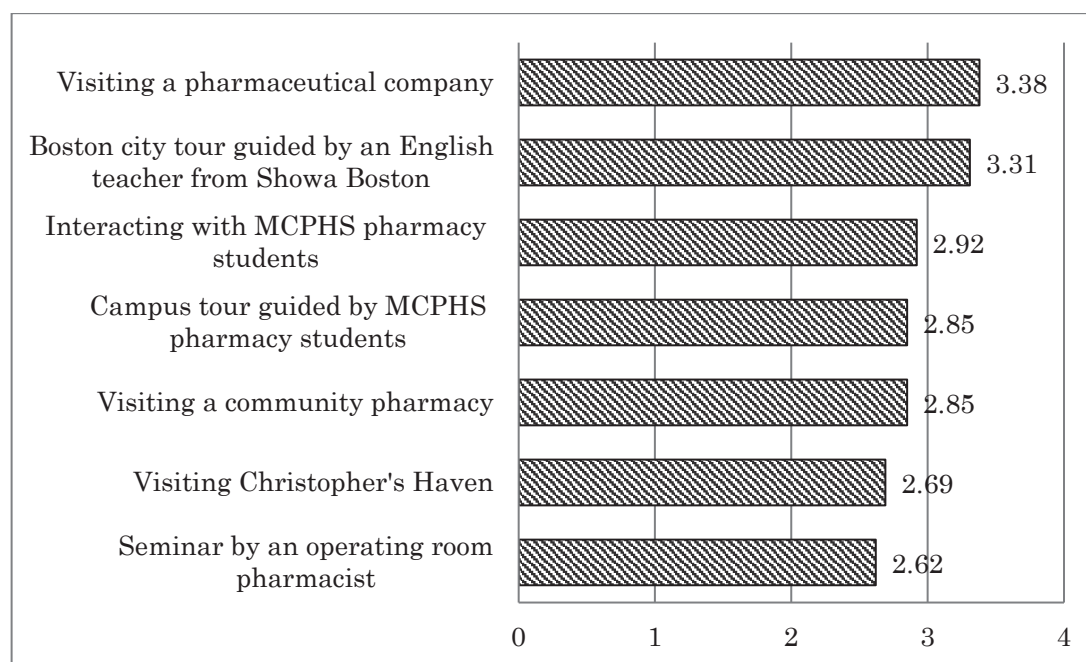


Figure 1 The students' self-evaluation scores for their English comprehension during the Pharmacy Study Abroad program activities

In the next step, we focused on the English vocabulary used during the operating room pharmacist's seminar. We obtained the seminar presentation from the operating room pharmacist, Dr. Kennedy, and examined its vocabulary. Of the 335 words used in the presentation, 70 words (20.9%) were categorized as JACET 8000 level 5 or higher (Figure 3)

Ten of the 70 words (14.2%) were medical English vocabulary (Table 1). Sixty-nine of the 335 words (20.6%) were not included in the JACET 8000 vocabulary list, which means that they are not commonly used words. We assumed that these words were technical or medical terms. Of the 69 words, 43 words (62.3%) were medical English terms (Table 2). Among the 196 words that were in JACET 8000 level 4 or lower, 16 (8.2%) were medical terms (Table 3).

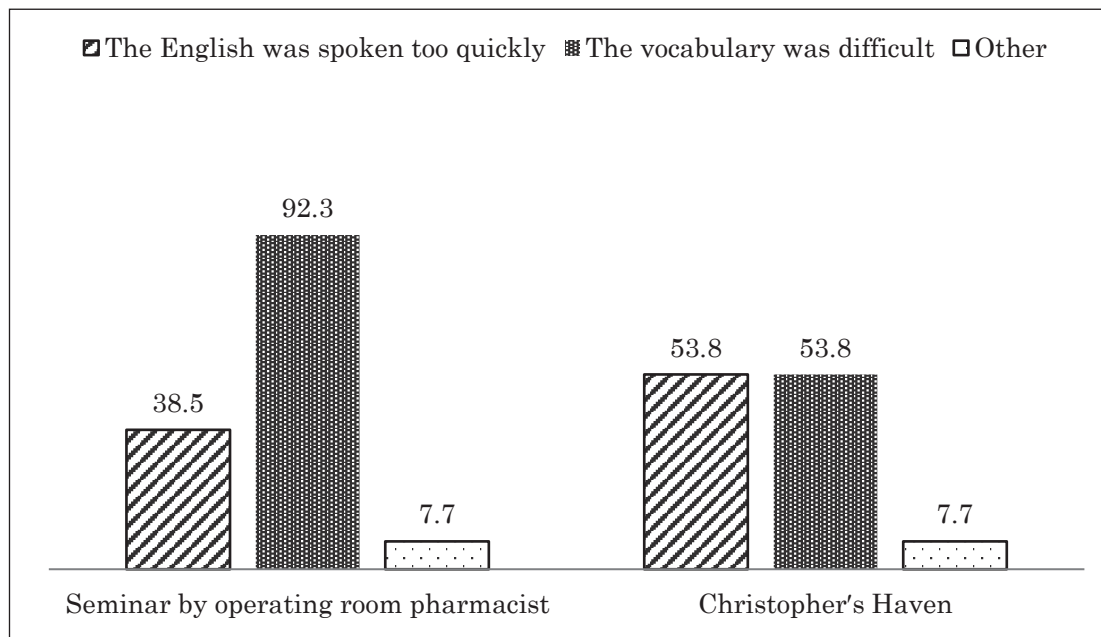


Figure 2 Reasons for the students' difficulty with the English vocabulary during the activities (%) (multiple answers allowed)

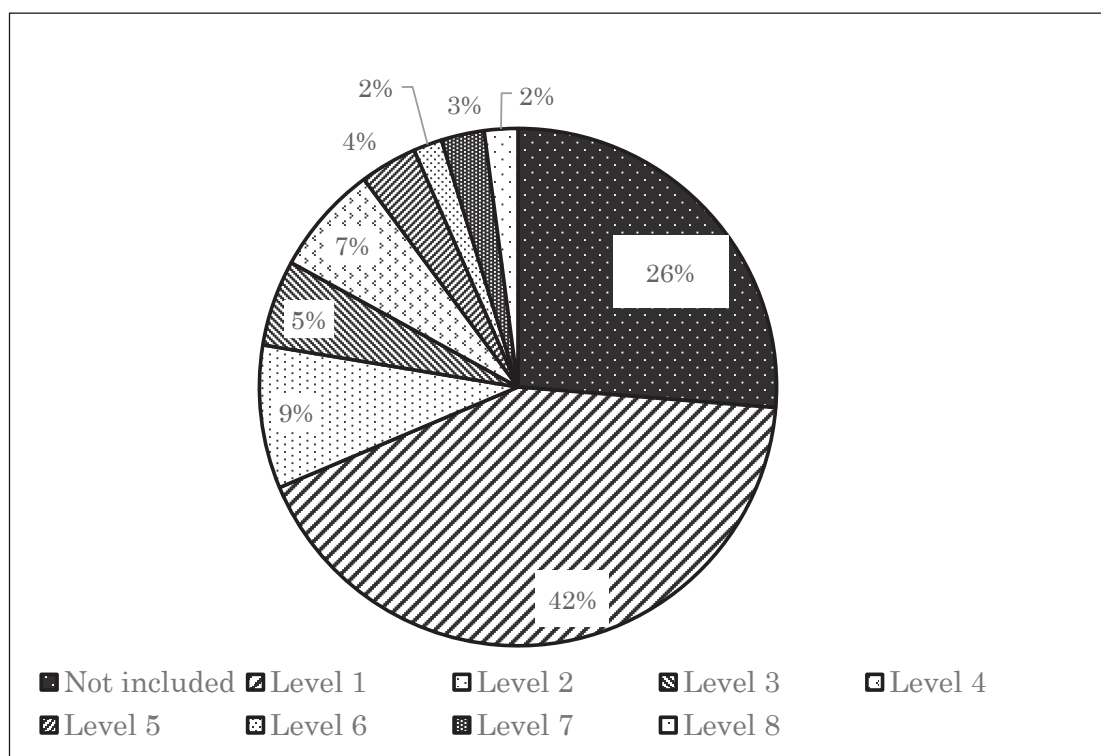


Figure 3 JACET 8000 difficulty levels of the vocabulary used during the operating room pharmacist's seminar

Table 1 JACET 8000 level 5 or higher medical vocabulary used in the operating room pharmacist's seminar

adverse, antibiotic, kidney, medication, transplant, seizure, artery, cardiac, spinal, malignant

The terms are listed in the order that appeared in the presentation.

Table 2 Medical vocabulary used in the operating room pharmacist's seminar not included in JACET 8000

pharmacy, pharmacist, outpatient, inpatient, sterile, iv, chemotherapy, orthopedic, neuro, vascular, gynecologic, pediatric, obstetric, narcotic, intravenous, clinician, sedative, benzodiazepines, barbiturates, neuromuscular, emetics, cardiovascular, anesthetic, hemostats, Omnicell, anesthesia, Lexicomp, PubMed, clindamycin, irrigation, abdomen, allergy, lidocaine, topical, thrombin, Keppra, renal, perfusion, radial, methylprednisolone, operative, hyperthermia, hemostasis
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The terms are listed in the order that appeared in the presentation.

Table 3 Medical vocabulary used in the operating room pharmacist's seminar lower than JACET 8000 level 5

hospital, health, care, sign, patient, side effect, operate, drug, nurse, injury, surgery, agent, clinic, clinical, practitioner, oral dose

The terms are listed in the order that appeared in the presentation.

DISCUSSION

The study results show that the students experienced the most difficulty with understanding the lexically complex English terms during the seminar in the Pharmacy Study Abroad program. Their English comprehension was hindered by the unusual or technical vocabulary such as medical English vocabulary in the seminar, which influenced their impressions about their overall comprehension and difficulty with the Pharmacy Study Abroad program activities.

The 5-point Likert self-evaluation score results for English comprehension showed that the students considered the operating room pharmacist's seminar to be the most difficult to comprehend, with the lowest average score (2.62) among the seven activities. Although the students could read the English-language slides while listening to the seminar presentation, they felt that although the slides were not available in the other activities, the seminar was the most difficult activity because of the unfamiliar vocabulary used during the presentation.

The seminar provided 296 content words out of the 335 words identified, including 69 medical terms, which is 23.3% of the content words. According to JACET 8000, more than 35% of the words used in the seminar were either words that were categorized as high level or not included in the list, which means that they were not frequently used content words as listed in JACET 8000. The seminar focused on describing the operating room pharmacist's work, which led to a high frequency of medical English vocabulary and infrequently used words, which is consistent with the students' impressions.

Our second research question concerned what we should teach the students to facilitate their English comprehension before they departed Japan for the Pharmacy Study Abroad program. The results of our study suggested that the lack of medical or pharmacy English vocabulary was a major factor that hindered their English comprehension. Therefore, we should reinforce the Japanese students' medical and pharmaceutical English vocabulary. Tamamaki (2015) reported the efficacy of English e-learning as a preparatory education for the Pharmacy Study Abroad program, which might become more effective if we could combine the English e-learning program with learning medical English vocabulary to familiarize the students with medical English terms in addition to their pronunciation.

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APPENDIX 1

Kobe Pharmaceutical University 2015 Pharmacy Study Abroad Program ITINERARY

目次	Date	Schedule
1	Tuesday, March 3, 2015	Lv. Itami Ar. Narita Lv. Narita Arrive in Boston To Showa Boston by limousine bus
2	Wednesday, March 4	AM: 10 am – Opening ceremony followed by Program overview. 10:30 am – lecture: American health insurance system by Hiroko. 11 am – Orientation by Showa Student Service Lunch PM: 1:30–3:30 pm Jeff’s English comprehension class
3	Thursday, March 5	Visit MCPHS for the whole day Appointment 9:15 am–3:15 pm
4	Friday, March 6	AM: 9 am Boston city tour led by Showa Student Service PM: 1:30–3 pm Japanese lecture with Dr. Tatsuta 7–8 pm Jeff’s English comprehension class
5	Saturday, March 7	

6	Sunday, March 8	
7	Monday, March 9	AM: 9–11:30 am Jeff’s English comprehension class PM: 1–2:30 pm Guest speaker at Showa – Dr. Audrey Kennedy’s seminar, operating room pharmacist from Massachusetts General Hospital (MGH)
8	Tuesday, March 10	AM: 10–11:30 am MGH museum tour PM: 1–2:15 pm Christopher’s Haven visit
9	Wednesday, March 11	AM: 10–11:30 am West Roxbury Pharmacy visit PM: 2–3:30 pm Genzyme visit
10	Thursday, March 12	AM: 10 am Museum of Fine Arts tour by Jeff PM: 1:30–3 pm Guest speaker at Showa – Dr. Ayumi Maeda, Anesthetist from MGH
11	Friday, March 13	AM: 9–11 am Jeff’s English comprehension class 11:10 am –Closing ceremony PM: Free time
12	Saturday, March 14	Lv. Boston to Narita
13	March 15	Ar. Narita

APPENDIX 2

First Questionnaire

I あなたは海外研修中の見学先で聞いた英語がどの位理解できていましたか？各場面を思い出して答えて下さい。

① MCPHS のキャンパスツアーをガイドして下さった人の説明

1 ----- 2 ----- 3 ----- 4 ----- 5
全く聞き取れなかった 半分程聞き取れた ほぼ聞き取れた

② MCPHS での学生さんとのやり取り

1 ----- 2 ----- 3 ----- 4 ----- 5
全く聞き取れなかった 半分程聞き取れた ほぼ聞き取れた

③ ボストン市内ツアーをガイドしてくれた昭和ボストン RA の学生さんの英語

1 ----- 2 ----- 3 ----- 4 ----- 5
全く聞き取れなかった 半分程聞き取れた ほぼ聞き取れた

④ 手術室薬剤師 Audrey さんのプレゼンテーション

1 ----- 2 ----- 3 ----- 4 ----- 5
全く聞き取れなかった 半分程聞き取れた ほぼ聞き取れた

⑤ Christopher's Haven の職員の方の説明

1 ----- 2 ----- 3 ----- 4 ----- 5
全く聞き取れなかった 半分程聞き取れた ほぼ聞き取れた

⑥ West Roxbury Pharmacy での店長さんやテクニシャンの方の説明

1 ----- 2 ----- 3 ----- 4 ----- 5
全く聞き取れなかった 半分程聞き取れた ほぼ聞き取れた

⑦ Genzyme での説明

1 ----- 2 ----- 3 ----- 4 ----- 5
全く聞き取れなかった 半分程聞き取れた ほぼ聞き取れた

Second Questionnaire

海外実習の7つの場面における英語理解度の平均スコアが最も高かったのは「Genzymeでの説明(3.4)」、次いで「Boston 市内観光の説明(3.3)」でした。最も低かったのは「米国人手術室薬剤師 Audrey さんのプレゼンテーション(2.6)」、次いで「Christopher's Havenでの説明(2.7)」でした。それぞれの場面の英語について、当てはまる答の()に○をつけて下さい。(複数回答可) 「3.その他」を選んだ人はその理由を[]に是非書いて下さい。

(1) Genzyme での説明が分かりやすかったのは何故だと思いますか？

1. ゆっくり話してくれたから () 2. 語彙が分かりやすかったから ()
3. その他 () []

(2) Boston 市内観光の説明が分かりやすかったのは何故だと思いますか？

1. ゆっくり話してくれたから () 2. 語彙が分かりやすかったから ()
3. その他 () []

(3) 手術室薬剤師 Audrey さんのプレゼンテーションが分かりにくかったのは何故だと思いますか？

1. 英語が速かったから () 2. 語彙が難しかったから ()
3. その他 () []

(4) Christopher's Haven での説明が分かりにくかったのは何故だと思いますか？

1. 英語が速かったから () 2. 語彙が難しかったから ()
3. その他 () []

APPENDIX 3

JACET 8000

Level 1 (ranking 1–1,000) : Basic vocabulary from junior high school English textbooks. About 70% of ordinary English includes words at this level.

Level 2 (ranking 1,001–2,000) : Elementary high school vocabulary. Covers 75% of words used in English newspapers and nearly 90% of plain English literature. Corresponds to the EIKEN pre-2nd grade.

Level 3 (ranking 2,001–3,000) : High school English textbook vocabulary. The National Center Test for University Entrance Examinations comprises words up to this level. This level is required to complete general education. Essential vocabulary for EIKEN Level 2.

Level 4 (ranking 3,001–4,000) : Equivalent to the beginner level of university entrance exams and general university education. This is a turning point where students' English vocabulary knowledge is questioned.

Level 5 (ranking 4,001–5,000) : Equivalent to difficult university entrance exams and university general education level. Students aim to achieve 400 to 500 points on the EIKEN pre-1st grade level and the Test of English for International Communication (TOEIC). Gradually, the students' comprehension of the English vocabulary required in each specialized field will increase.

Level 6 (ranking 5,001–6,000) : This is the target level of vocabulary for university students and business people who do not specialize in English and is equivalent to pre-1st grade in EIKEN and 600 points in TOEIC.

Level 7 (ranking 6,001–7,000) : This is the target level for university students majoring in English and business people who use English at work. EIKEN Level 1 and TOEIC covers more than 95% of words at this level.

Level 8 (ranking 7,001–8,000) : This is the final goal of general English vocabulary learning for Japanese learners of English. At this stage, the students only need to increase their knowledge of relevant terminology for specific domains.

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