Medical English Education: A Comparative Analysis of Learner Needs Between National University Students and Private University Students

医学英語教育：国立大学生と私立大学生間における学習者ニーズの比較分析

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List of Acronyms

ALT	Affective Learning Tasks
A-V	Audio-Visual
AY	Academic Year
CAT	Common Achievement Test
CBT	Computer-Based Test
CLT	Content Learning Tasks
CV	Curriculum Vitae
DPC	Doctor-Patient Communication
EAP	English for Academic Purposes
EBP	English for Business Purposes
EEP	English for Educational Purposes
EFL	English as a Foreign Language
ELP	English for Legal Purposes
ELT	Error-based Learning Tasks
EMP	English for Medical Purposes
ENG	English
EOP	English for Occupational Purposes
ESL	English as a Second Language
ESP	English for Specific Purposes
EST	English for Science and Technology

EVP	English for Vocational Purposes
GRE	Graduate Record Examination
HLT	Choice-based Learning Tasks
IELTS	International English Language Testing System
ILT	Interactive Learning Tasks
JPN	Japanese
LCA	Learner Centered Accuracy
LCF	Learner Centered Fluency
LLT	Language Learning Tasks
MA	Master of Arts
MD	Doctor of Medicine
MEXT	Ministry of Education, Culture, Sports, Science, and Technology
MOC	Medical Oral Communication
MT	Medical Terminology
OSCE	Objective Structured Clinical Examination
OP	Oral Presentation
PhD	Doctor of Philosophy
PtN	Take Patient Notes
Qual	Qualitative
QUAN	Quantitative
RSJ	Reading Scientific Journals

SA	Study Abroad
SCS	Case Study Problem-Solving
SD	Standard Deviation
SQ	Student Questionnaire
SW	Scientific Writing
TCA	Teacher Centered Accuracy
TCF	Teacher Centered Fluency
TEFL	Teaching English as a Foreign Language
TESL	Teaching English as a Second Language
TESOL	Teachers of English to Speakers of Other Languages
TOEFL	Test of English as a Foreign Language
UA	University A
UB	University B
UCL	Understanding Classroom Lectures
UMT	Understanding Medical Terminology
USMLE	United States Medical Licensing Examination
WA	Working Abroad
WSA	Writing Scientific Articles

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Chapter 1

Introduction

1.1 Background of the Study

"The Nobel Laureate and eminent physicist Niels Bohr once remarked that science is deeply immersed in language, which influences the way it is interpreted and practiced" (Ray, 2012, p. 290). The importance of the English language for scientific communication is also reflected by the increase in the number of scientific publications written in English by researchers in non-English speaking countries (Krashen, 2003). For example, editors of the Pasteur Institute in Paris found that submissions of articles written in English to the institutional journal rose from 15% in 1973 to 100% in 1987. This prompted a change in the official language of the journal from French to English (Garfield, 1989). Similarly, English has become the primary language of communication for most medical journals and international conferences (Maher, 2007; Wulff, 2004). The pressure on medical researchers in non-English speaking countries to communicate their findings in English (Maher, 1981) should result in increasing emphasis on English language education and training at medical institutions. However, large scale surveys conducted at medical institutions in Japan have shown that English language education only forms a small part of the university curriculum (Morse & Nakahara, 2001; Yamanaka & Parker, 2005) and courses are usually focused in the first two years of study (Kozu, 2006; Tokuda, Hinohara, & Fukui, 2008) due to the need to focus on discipline-related subjects. The restricted

amount of English language instruction and its apparent ineffectiveness (Matsui et al., 2004; Tsao, Wei, & Fang, 2008) has led many medical institutions to favor the learning of language specific to the students' discipline in the form of English for Specific Purposes (ESP) and its sub-categories. In particular, English for Medical Purposes (EMP) is increasingly finding favor amongst medical schools in Japan. A nation-wide survey reported that 77.5% (n = 62) of Japanese medical schools (n = 80) instituted compulsory EMP courses within the university curriculum (Yuasa et al., 2012). The higher proportion of compulsory EMP courses being offered at Japanese medical schools places increasing pressure on researchers to monitor its effectiveness by reporting findings in academic papers or conferences. However, an examination of conference research abstracts in the *Journal of Medical English Education* over a three year period from 2011 and 2013 showed that only about 22% (n = 11) of accepted abstracts (n = 51) linked research with theory or addressed broader issues in the field of ESP. Consequently, a large proportion of researchers seemed to be unaware of the fact that EMP research draws extensively from established principles in ESP. This oversight is unfortunate considering that there is a need to base EMP research with ESP theory in order to allow for comparisons to be made across several studies at the international level.

1.2 Research Questions

This dissertation aims to answer the following three research questions:

1. What is the situation with regards to EMP education at university affiliated medical schools in Japan?
2. What differences exist regarding EMP learner needs between national and private university affiliated medical schools in Japan?
3. What improvements can be made in order to advance EMP education at university affiliated medical schools in Japan to international standards?

1.3 Focus and Scope of the Research

This dissertation focuses on the broad theme of ESP under medical contexts. More specifically, the dissertation focuses on a sub-category of the field of ESP referred to as EMP. This dissertation aims to: (1) bridge the existing knowledge gap by tracing the development of ESP/EMP theory through a review of literature in the field, (2) conduct a comparative quantitative analysis of learner needs under EMP contexts at a national and private medical school through the use of surveys, field notes, and findings from previous international research studies, and (3) suggest measures for improving the quality of EMP education and research in Japan and other East Asian countries where English is taught as a second language in medical courses at tertiary institutions.

1.4 Research Significance

While several international studies (Chia, Johnson, Chia, & Olive, 1999; Hwang, 2011; Hwang & Lin, 2010) exist highlighting EMP learner needs at a particular medical school, very few studies attempt to provide a comparative analysis of EMP learner needs between public-funded and private-funded medical schools. This is detrimental in that: (1) teachers are provided with disjointed pieces of information concerning EMP learner needs, leading to uneven instructional focus at the institutional level, (2) there is a lack of awareness of learner differences between public-funded and private-funded medical schools, leading to unselective EMP instruction at the institutional level, and (3) it prevents the establishment of a standard for EMP instruction at the institutional level.

In an effort to address these problems, this dissertation attempts to link original research findings with relevant research in the field in order to provide a realistic portrayal of actual EMP learner needs at national and private medical schools, and how this may help to improve the quality of EMP instruction in Japan and other East Asian countries such as South Korea, Taiwan, or China. As a result, the dissertation deviates from standard case studies that only offer a limited understanding of learner needs at a particular institution, and instead adopts an exploratory research approach that attempts to establish differences between groups of learners from two fundamentally different institutions through statistical analyses. Hence, the purpose of this dissertation is to provide an initial comparative framework on which to base future statistical research studies of learner needs

under EMP contexts. As such, this dissertation provides an important contribution to the literature in the field by providing researchers with a comparative statistical analysis of EMP learner needs between a national medical school and private medical school in Japan. It is hoped that the dissertation will provide future researchers with insights into some of the needs of senior year medical students with respect to language and learning in the EMP classroom.

1.5 Overview of the Dissertation

Chapter 1 defined the research focus and scope through an outline of the significance and limitations of the study. Chapter 2 describes the characteristics of ESP and EMP by tracing its development through a critical review of the literature in the field. Chapter 3 provides an overview of EMP education at Japanese medical schools by examining the EMP curricula at national, public, prefectural, and private universities. Chapter 4 explains the methodology of the study and covers issues concerning data collection. Chapter 5 reports the results of the study and discusses its implications. Chapter 6 discusses measures for improving the quality of EMP education at Japanese medical schools. Chapter 7 provides suggestions for further research in the field of ESP and EMP.

Chapter 2

A Review of ESP and EMP Literature

2.1 Overview of Chapter 2

In order to fully understand the development of EMP, we need to establish the role of EMP in relation to ESP through a critical examination of relevant literature in the field. This process is vital in order to ensure that all researchers' share a common understanding of ESP theory and make efforts to link EMP research with previous studies in the field. In this chapter, section 2.2 covers historical development and common definitions of ESP. Section 2.3 reviews theoretical characteristics of ESP. Section 2.4 examines classification systems of ESP. Section 2.5 covers historical development and common definitions of EMP. Section 2.6 examines the structure of EMP courses. Section 2.7 reviews previous international research conducted in the field of EMP.

2.2 Definitions of English for Specific Purposes

ESP differs from content-based learning or language-based learning in that it is a blend of the two forms of learning with the degree of emphasis placed on content or language instruction depending upon the specificity of purpose of the course. Therefore, it is necessary to treat ESP as an entirely separate field. ESP first emerged in the 1960s as a result of linguistic interest in scientific prose (Barber, 1962) and technical English (Herbert, 1965). The demand for ESP grew in the 1970s mainly due to the works of influential scholars such as Swales (1971) and Bates and Dudley-Evans (1976) that focused on the use

of English in scientific writing. However, it was not until the 1980s before linguists attempted to define and treat ESP as a separate field. Hutchinson and Waters (1987) proposed a broad definition for ESP as encompassing "an approach to language teaching in which all decisions as to content and method are based on the learner's reason for learning" (p. 19). Strevens (1988) took this a step further by describing ESP as a form of English language teaching designed to meet the specific needs of the learner. However, Swales (1988) cautioned against the grounding of ESP into any single instructional methodology (e.g. communicative language teaching) as ESP encompasses the teaching of a broad range of skills specific to each discipline or area. In particular, he stressed the need to avoid "theories that do not quite work out [within] the realities of the classroom" (p. xvii). Consequently, Johns and Dudley-Evans (1991) offered a more restrictive definition in that "ESP requires the careful research and design of pedagogical materials and activities for an identifiable group of adult learners within a specific learning context" (p. 298). A more common definition that has found favor amongst researchers (Dudley-Evans & St. John, 1998; Hyland, 2006; Tsao 2011) nowadays categorizes ESP into the teaching of English to adult learners for academic, professional, or vocational reasons. As a result, a number of sub-divisions exist within ESP including: English for Academic Purposes (EAP), English for Business Purposes (EBP), English for Educational Purposes (EEP), English for Legal Purposes (ELP), English for Medical Purposes (EMP), English for Occupational Purposes (EOP), English for Science and Technology (EST), and English for Vocational Purposes

(EVP).

2.3 Characteristics of English for Specific Purposes

Strevens (1988) who was instrumental in developing and defining ESP described it in terms of containing four absolute and two variable characteristics. He explained the principal characteristics of ESP as follows (pp. 1-2):

1. Absolute characteristics:
    i) Designed to meet specified needs of the learner
    ii) Related in content to particular disciplines, occupations, and activities
    iii) Centered on language appropriate to those activities
    iv) Differs from general English courses [regarding the amount of content]
2. Variable characteristics:
    i) Restricted as to the language skills to be learned
    ii) Not taught according to any pre-ordained methodology

Equally significant in terms of its impact on ESP development, Dudley-Evans and St. John (1998) proposed a modified version of Strevens' list which included two further key variable characteristics (p. 5):

iii) Designed for adult learners at higher learning institutions/situations

iv) Designed for learners with intermediate/advanced English language skills

Consequently, it can be stated that ESP can be best described in terms of encompassing four absolute characteristics and four variable characteristics. These

characteristics are constantly evident during the design, implementation, or evaluation of all ESP courses. Central to the design, implementation, and evaluation of all ESP courses is an analysis of learner needs (Dudley-Evans & St. John, 1998; Hutchinson & Waters, 1987; Strevens, 1988). Antic (2007) and Hwang (2011) remarked that any analysis of learner needs under ESP contexts must consider the following three areas: (1) the learners' current level of knowledge (i.e. target characteristics), (2) what learners' want to achieve (i.e. target goals), and (3) how learners' will be using the language (i.e. target situation). Significantly, Dudley-Evans and St. John (1998) pointed out that needs analysis is an on-going process that occurs repeatedly during the design, implementation, and evaluation of an ESP course. Strevens (1988) alluded to this continual process of needs analysis in ESP courses as providing better support to learners in the short term since it allows for more focused learning, facilitates the understanding of specialized language, and caters to the learner's future goals. Brown (2001) highlighted several methods that language researchers use when conducting a needs analysis including: interviews, literature reviews, observations, questionnaires, or tests. Under ESP contexts, studies of learner needs range from single-method studies such as Jacobson's (1986) observational study of physics students to multiple-methods studies such Bosher and Smalkoski's (2002) study of nursing students that employed interviews, observations, and questionnaires. Another important aspect of ESP stressed by researchers working in ESL/EFL situations was the need for students to have already acquired a firm command of the English language prior to

enrolling in such courses (Huang, 2007; Wong, 2005). This was taken a step further by Hwang (2011) and Tsao (2011), who pointed out that successful learning under ESP contexts is dependent upon the objectives of the course being attainable within the students' current language levels. Consequently, the focus of the ESP course must reflect not only the learners' needs, but also the learners' language abilities. Once the learners' needs and language abilities have been determined, the ESP teacher needs to: establish the objectives and materials of the course, teach the course in conjunction with (or without) a subject teacher, conduct classroom research to improve teaching practice, and evaluate the course to identify any problems that learners may have encountered. As such, the ESP teacher needs to perform as many as six different roles including: course designer, material designer, teacher, collaborator, researcher, and evaluator (Dudley-Evans & St. John, 1998).

2.4 Classifications of English for Specific Purposes

The sub-division of ESP into area/discipline specific categories significantly complicated its classification. Robinson (1991) first attempted to classify the different sub-divisions of ESP through the usage of a tree diagram (see Figure 2.1).

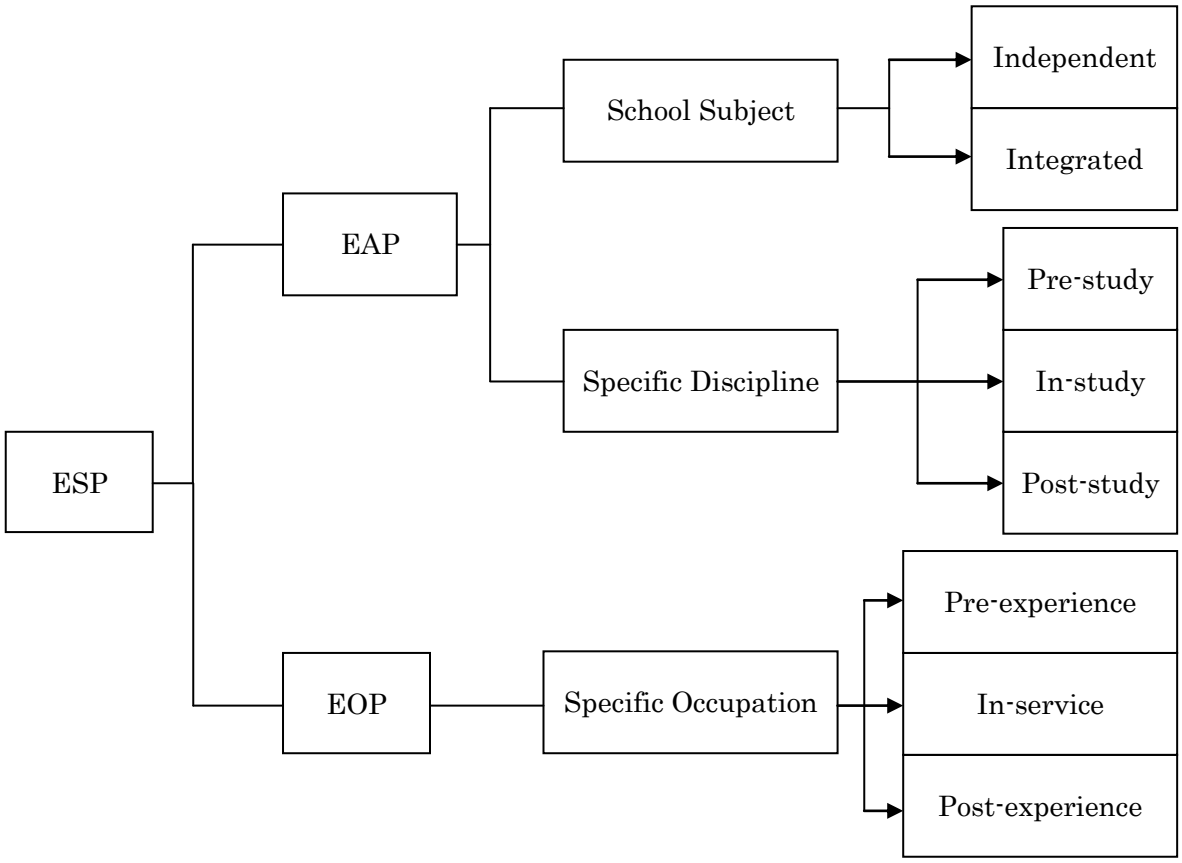


Figure 2.1 Classification of ESP by learning experience. Adapted from *ESP Today: A Practitioner's Guide* (pp.3-4), by P. Robinson, 1991, New York: Prentice Hall.

Within the tree diagram, ESP was divided into two main areas composed of academic (i.e. EEP/EAP) courses and work-related (i.e. EOP) courses. This division enabled courses to be categorized according to when they occur during the language learning process, allowing for better understanding of the degree of specificity necessary for each course. For example, the degree of specificity necessary for pre-study or pre-experience courses would be lower than for post-study or post-experience courses as the learner is at the beginning of the language learning curve. However, the rigid framework of tree diagrams failed to illustrate the overlap of purpose within ESP (e.g.

EMP can be both a discipline and occupational objective), as well as account for issues of fluidity regarding the transfer of language skills between different courses. A more open interpretation was proposed by Dudley-Evans and St. John (1998) who described ESP in terms of a visual continuum divided into five language positions depending on skills taught within the course (see Figure 2.2).

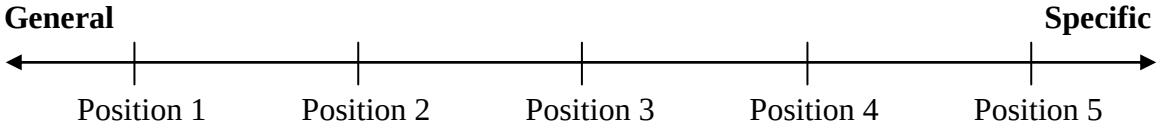


Figure 2.2 Continuum of ESP course types. Adapted from *Developments in English for Specific Purposes: A Multi-Disciplinary Approach* (p. 9), by T. Dudley-Evans and M. St. John, 1998, Cambridge: Cambridge University Press.

Within the continuum, they defined Position 1 as encompassing beginner level language courses that focus on building basic English skills; Position 2 as encompassing intermediate to advanced level language courses that focus on building a particular English skill, Position 3 as encompassing beginner level ESP courses that focus on building basic skills not directly related to a specific discipline or profession (e.g. EAP), Position 4 as encompassing intermediate to advanced level ESP courses that focus on building skills related to a specific discipline or profession (e.g. EMP), and Position 5 as encompassing advanced level ESP courses that target a particular professional situation or individual need. However, while accounting for fluidity issues within ESP, Dudley-Evans and St. John's (1998) continuum failed to establish the overall purpose (i.e. orientation) of the course or

provide sufficient examples of course types encountered under ESP contexts. It is proposed that a more identifiable classification system for ESP be adopted in the form of a table which divides ESP courses into five language learning zones depending on its specificity of purpose (see Table 2.1).

Table 2.1 *ESP Course Zones Based on Specificity of Purpose*

ESP	*Zone 1*	*Zone 2*	*Zone 3*	*Zone 4*	*Zone 5*
Purpose	Education	Academic	Discipline	Profession	Occupation
Type	EEP	EAP	EBP/EST	ELP/EMP	EOP
Content	0-20%	20-40%	40-60%	60-80%	80-100%
Language	100-80%	80-60%	60-40%	40-20%	20-0%
Level*	Novice	Pre-intermediate	Intermediate	Pre-advanced	Advanced

*: Entry-level English ability needed for ensuring successful learning under ESP contexts

Within the table, each zone is classified according to its specificity of purpose, course type, optimum percentage range for content instruction, optimum percentage range for English language instruction, and entry-level English ability needed by learners to ensure successful learning under ESP contexts. For Zone 1, the purpose of the EEP course is the acquisition of English language skills under educational contexts implying that central emphasis (80-100%) should be placed on English language instruction. Content may be introduced in the course, but it should not consist of more than 20% of total instruction. Learners may enter the EEP course with only minimal English language

abilities as the focus of the course is to develop their language skills. For Zone 2, the purpose of the EAP course is the acquisition of academic English language skills implying that main emphasis (60-80%) should be placed on English language instruction. Content introduced in the course is focused towards developing rhetorical language skills, but it should not consist of more than 40% of total instruction. Learners should enter the EAP course with at least pre-intermediate English language abilities as the focus of the course is to develop their academic language skills. For Zone 3, the purpose of the EBP/EST course is the acquisition of English language skills needed for a specific discipline implying that parallel emphasis (40-60%) should be placed on English language instruction and content instruction. Language introduced in the course is focused towards developing technical language skills needed for communicating within the specific discipline. Content introduced in the course is focused towards developing understanding of discipline-specific knowledge within the target language. Learners should enter the EBP/EST course with at least intermediate English language abilities as the focus of the course is to develop their technical language skills. For Zone 4, the purpose of the ELP/EMP course is the acquisition of English language skills needed for a specific profession implying that main emphasis (60-80%) should be placed on content instruction. Language introduced in the course is focused towards developing distinctive language skills needed for communicating within a specific profession, but it should not consist of more than 40% of total instruction. Learners should enter the ELP/EMP course with at least pre-advanced English language

abilities as the focus of the course is to develop professional language skills which may be unfamiliar to even native-speakers of the language. For Zone 5, the purpose of the EOP course is the acquisition of English language skills needed for a specific occupational situation implying that central emphasis (80-100%) should be placed on content instruction. Language introduced in the course is focused towards developing situational language skills needed for communicating within a specific occupation, but it should not consist of more than 20% of total instruction. Learners should enter the EOP course with at least advanced English language abilities as the focus of the course is to develop specific language skills that are restricted to certain occupations or situations. The main benefit of this form of ESP classification system is that it addresses some of the controversies surrounding ESP with regards to how much content should be introduced as opposed to language instruction (Hutchinson & Waters, 1980; 1987; Johns & Dudley-Evans, 1991) by clearly illustrating how learners' language skills are built upon and transferred from zone to zone. This implies that the ESP curriculum needs to be scaffolded as English language instruction decreases proportionately with the amount of content introduced into the course. Hence, a course with a high specificity of purpose (e.g. Zone 4 or Zone 5) requires more instructional emphasis on content language than on language mechanics. As a result, there exists a need to separate learners according to English language abilities under ESP contexts and offer remedial courses (e.g. EEP, EAP, EBP/EST, ELP/EMP) for learners who do not meet the minimum entry-level English ability requirements for each zone. In this

manner, it is possible to ensure that the learner has acquired the necessary language skills needed to achieve competency prior to entry into the next zone.

2.5 Definitions of English for Medical Purposes

As a sub-division within the field of ESP, English for Medical Purposes (EMP) focuses on the instruction and learning of language specific to medical contexts. Like ESP, EMP emerged due to interest in the use of English in scientific writing during the 1960s to 1970s. In essence, EMP evolved from ESP as a result of the demand for specific materials dealing with the use of English in medical writing (Toguri, 1963) and medical reading (Ebizuka & Kaneda, 1978) contexts to support the needs of non-native speakers of English. Consequently, Naerssen (1978) first attempted to describe EMP as a form of English as a Second Language (ESL) education that emphasizes instruction of medical English according to professional needs. Maher (1986a) provided a more specific definition for EMP by referring to it as a branch of ESP that focuses on medical English and involves "the teaching of English for doctors, nurses, and other personnel in the medical professions" (p. 112). Fang (1987) took this one step further by dividing EMP learning according to the five main medical licensing fields: dentistry, medical technology, medicine, nursing, and pharmacology. However, Shen (1996) remarked that the English learning needs of students differed from medical personnel and suggested that there was a need to distinguish between the two target groups. Subsequently, Lee (1998) described EMP in terms of a specialized English course that provides students or medical personnel

with the English skills needed for their specific profession. A more practical definition was provided by Chang (2007) who described EMP as any form of teaching intended to support medical studies in English. Alternatively, a pedagogical definition for EMP would be the study of the English language under medical contexts for learners, instructors, or health care professionals.

2.6 Course Structure of English for Medical Purposes

If we accept the above definitions for EMP, it follows that there is a need to delineate EMP courses in terms of focus and content. Maher (1986a) described EMP courses as being structured according to two fundamental variables: "(1) the type of learner involved, and (2) the nature or main purpose of the courses" (p. 116). However, since most EMP courses must primarily take into account the needs of learners (Chia et al., 1999; Hwang, 2011; Hwang & Lin, 2010), the focus or main purpose of the EMP course is largely dependent upon the type of learner enrolled in the course. Therefore, the focus of the EMP course should reflect the actual needs of learners rather than potential institutional needs. Similarly, EMP course content should be designed to meet the specific needs of learners in terms of content knowledge levels and language levels (Kondo, 2008). Reports from both linguists (Webber, 1995) and medical staff (Date, 2013) alike also seems to suggest that EMP courses should adopt a more focused approach targeting a specific need or skill(s) (e.g. medical terminology) rather than a holistic approach covering a broad range of skills (e.g. medical English). In this respect, Maher (1986a) initially provided a list of

possible EMP courses categorized according to three learner types: doctor, nurse, and student (see Table 2.2).

Table 2.2 *List of Possible Courses in English for Medicine*

Type of Course	*Type of Learner*
Communication skills in ESL health care	All
Doctor-patient interaction	Doctor
Examination for Foreign Medical Licensure	All
Journal article writing	Doctor
Medical conference preparation	Doctor
Nurse-patient / Nurse-doctor interaction	Nurse
Report writing	All
Technical reading	All

Note. Adapted from "State of the Art: English for Medical Purposes," by J. Maher, 1986, *Language Teaching, 19*(2), p. 116.

Unfortunately, the list did not include other medical licensing fields (e.g. dentistry) or take into account the degree of overlap between certain types of EMP learners and courses (e.g. journal article writing is not exclusive to doctors). As a result, the value of the list was limited in terms of the type of learner and course encountered under EMP contexts. If we already assume that most EMP courses will have to be adjusted to meet the needs of a specific group of learners or licensing field, it is perhaps not necessary to

categorize courses by learner types. Instead, a more practical solution would be to list courses according to type and objectives. Although by no means complete, an initial list of some important EMP courses with possible objectives is provided below (see Table 2.3).

Table 2.3 *List of Possible Courses in EMP*

Type of Course	*Objectives of Course*
Administrative Communication Skills	Phone, Emails, Patient Records
Foreign Medical Licensure	USMLE® and other Licensing Exams
Job Application Skills	CV, Cover Letter, Research Statement
Medical English Language Skills	Language Usage, Pronunciation, Intonation
Medical Practices in Other Countries	Practices, Regulations, Culture
Medical Presentation Skills	Presentations, Posters, Lectures, Workshops
Medical Reading Skills	Journal Articles, Abstracts, Case Studies
Medical Terminology	Word Parts, Vocabulary, Abbreviations
Medical Writing Skills	Case Studies, Medical Reports, Patient Notes
Patient Communication Skills	Patient History, Patient Communication
Professional Communication Skills	Dentist, Doctor, Nurse, Pharmacist
Scientific Writing for Research Purposes	Research Articles, Abstracts, Grant Proposals
Tests for Overseas Research Purposes	GRE®, TOEFL®, IELTS®, USMLE® (Step 1)

Note. Adapted from "State of the Art: English for Medical Purposes," by J. Maher, 1986, *Language Teaching, 19*(2), p. 116.

As Table 2.3 illustrates, there are a wide range of courses that fall under the label of EMP. Although the organization of EMP courses within the institutional curriculum is largely dependent upon learner characteristics and needs, there are some factors or constraints to consider with regards to language learning and acquisition. The most important factor to take into account is that all language skills are transferred from course to course during the learner's development. Therefore, there is a need to scaffold EMP courses according to the type of language skills covered in class. For example, EMP courses which focus predominantly on receptive skills needs to be provided early on in the curriculum. In contrast, EMP courses which focus predominantly on productive skills needs to be provided later on in the curriculum. Similarly, EMP courses that focus on vocabulary, medical terminology, grammar, or pronunciation have to be provided before learners are required to read, listen, write, or speak. Conversely, EMP courses focusing on a broad range of language skills or developing advanced clinical skills needs to be conducted towards the end of the curriculum when the learner has acquired sufficient knowledge and language ability needed to function under such contexts. Additionally, there also exists a need to provide EMP learners who do not possess sufficient English abilities (Matsui et al., 2004; Teo, 2007) with supplementary language courses that focus on building a particular skill (e.g. speaking, listening, etc.) throughout the course of their medical studies. In order to ensure that the EMP learner has acquired the necessary language skills needed to perform satisfactorily under EMP contexts, the language learning

process has to be scaffolded and spread out over the course of the institutional curriculum. This scaffolding process is important as there is evidence to suggest that a correlation exists between high English language proficiency levels and success as a medical resident in the U.S. (Eggly, Musial, & Smulowitz, 1999).

2.7 International Research in English for Medical Purposes

An overview of significant international research conducted in the area of EMP and English language education at medical institutions is also necessary for understanding the complete theoretical framework of this field. Additionally, the Japanese Ministry of Education, Culture, Sports, Science and Technology (MEXT) initiative for promoting global competitiveness and internationalization of universities in Japan through the *Project for Global Human Resource Development* (MEXT, 2012) places more incentive on researchers to conduct research based on previous international studies. Therefore, there is increasing pressure to shift away from independent research and move more towards conducting follow-up studies of previous international research in EMP. International research in EMP can generally be divided according to five main areas: communication, discourse/genre analysis, education, testing, and writing. EMP research focusing on communication examines the use of verbal skills under health care settings. Most international studies tend to focus on doctor-patient communication (Frank, 2000; Ibrahim, 2001), communicative competence of doctors (Candlin, Leather & Bruton, 1976) and communication skills of international medical graduates (Eggly, 1998), medical residents

(Eggly, Musial, & Smulowitz, 1999) or medical students (Rees & Sheard, 2002). EMP research focusing on discourse and genre analysis explores the linguistic features of medical language. International studies include acculturation and language usage of international medical graduates (Dahm, 2011; Hoekje, 2007), the use of collocations (Luzon Marco, 2000), if-conditionals (Carter-Thomas & Rowley-Jolivet, 2008) metaphors (Salager-Meyer, 1990), nominalization and alternations (Cohen, Palmer, & Hunter, 2008) or frequency and distribution of academic vocabulary (Chen & Ge, 2007; Wang, Liang & Ge; 2008) in medical papers. EMP research focusing on education explores the learning and teaching of the English language in medical contexts. International studies on EMP education covers a broad range of issues including curriculum design (Fang, 1987; Lee, 1998; Zhou, 1989), course design (Bosher & Smalkoski, 2002), syllabus design (Vigers, 2005), classroom instruction (Chang, 2007; Webber, 1995), learner needs (Chia et al., 1999; Hwang, 2011; Hwang & Lin, 2010), learner differences (Shen, 1996), learner difficulties (Heming & Nandagopal, 2012), student and teacher perceptions (Shukri, 2009) and teaching reflections (Dhaliwal, 2009). EMP research focusing on testing examines the evaluation of language skills for medical contexts. International studies on testing under EMP contexts tends to be mainly restricted to measuring communication skills through the development of specific tests (Inoue, 2009; McNamara, 1997), tasks (Grove & Brown, 2001) or web-based tools (Er & Planas, 2004). EMP research focusing on writing examines the application of language in medical writing. International studies cover a broad range of

issues such as citations in biomedical articles (Dubois, 1988), structure and function of medical papers (Nwogu, 1997), rhetorical constraints in medical writing (Bruce, 1984), frequency and distribution of English in medical publications (Maher, 1986b) or the role of language within the peer review process of medical publications (Mungra & Webber, 2010).

Chapter 3

Educational System at Medical Schools in Japan

3.1 Overview of Chapter 3

This chapter discusses the educational system at university affiliated medical schools in Japan with respect to undergraduate education and the role of EMP within the institutional curricula. Specifically, section 3.2 provides a brief synopsis of university affiliated medical schools in Japan. Section 3.3 reviews admission into undergraduate medical schools in Japan. Section 3.4 provides an overview of the undergraduate medical education system in Japan. Section 3.5 reviews undergraduate EMP education at university affiliated medical schools in Japan.

3.2 University Affiliated Medical Schools in Japan

There are currently 80 university affiliated medical schools in Japan, divided into 43 national, 29 private, and 8 public/prefectural funded schools (Kozu, 2006; Tokuda, Hinohara, & Fukui, 2008). Although the distinction between public and private-funded universities has become somewhat blurred due to the Japanese government's decision to convert national universities into nongovernmental institutions with the introduction of the *National University Corporation Law* in 2004 which required national universities to manage their own finances (Kozu, 2006), private universities are still dependent to a greater extent on private sector funding than national universities. All university affiliated medical schools are regulated by the *Ministry of Education, Culture, Sports, Science, and*

Technology (MEXT) and the official language for medical education is Japanese. One national (the *National Defense Medical College*) and two private (the *University of Occupational Environmental Health* and *Jichi Medical University*) medical schools have specific institutional goals and are usually not considered as mainstream medical schools. The *National Defense Medical College* is administered by the *Japan Defense Ministry* and educates physicians (i.e. doctors) for service in the *Japanese Self Defense Forces*. In contrast, the *University of Occupational Environmental Health* trains physicians for work in industrial companies or labor organizations, while as *Jichi Medical University* educates physicians for community care services (Kozu, 2006).

3.3 Admission into Undergraduate Medical Schools in Japan

In contrast to medical schools in the U.S. which requires all prospective applicants to have completed a bachelor's degree, Japanese medical schools only require a high school diploma for admission into (undergraduate) medical school. Admission into undergraduate medical schools in Japan is dependent to a significant degree on university entrance examination scores and to a lesser extent on high school grades, teachers' recommendations, or personal character (Tokuda, Hinohara, & Fukui, 2008). Fukushige and Yunoue (2006) reported that the average competition rate for entry into medical schools was one successful applicant for eleven failed applicants, and can be as high as one successful applicant for thirty-nine failed applicants for the more prestigious medical schools. Therefore, entry into undergraduate medical school is often regarded as the most

prestigious, yet most difficult amongst all the university departments in Japan.

3.3.1 Admission into Public-Funded Medical Schools in Japan

For admission into the 43 national and 8 public/prefectural medical schools, all prospective applicants must have passed the national exam administered by the *National Center for University Entrance Examinations* and achieved high scores in several of the subject areas tested including: Japanese language, English language, mathematics, two natural sciences (biology, chemistry, physics, etc.), and two social sciences (Japanese history, world history, geography, etc.). Most test items are generated by the respective medical schools which results in slight differences among tested areas for the natural sciences and social sciences (Kozu, 2006). Although entrance exams are updated on a yearly basis, the difficulty level of the entrance examination for public-funded medical schools is consistently higher than for private-funded medical schools. This can be evinced by examining the overall entrance exam difficulty rank which combines both public and private-funded medical schools (see Tables 3.1 and 3.2). Another significant difference between public-funded medical schools and private-funded medical schools are student tuition fees. For public-funded medical schools, the average six year tuition fee for a medical student until conferral of the M.D. degree is 3,406,800 Yen (Fukushige & Yunoue, 2006). This is about ten times less than the average tuition fee for private-funded medical schools. As a result, it can be stated that there is greater incentive for prospective medical students to apply for public-funded medical schools than for private-funded medical

schools.

Table 3.1 *Top 10 Public-Funded Medical Schools by Exam Difficulty Level in 2005*

University	*Public Rank*	*Overall Rank*
University of Tokyo	1	1
Tokyo Medical and Dental University	2	2
Kyoto University	3	3
Osaka University	4	4
Tohoku University	5	5
Nagoya University	6	6
Hokkaido University	7	7
Chiba University	8	8
Yokohama City University	9	9
Kobe University	10	10

Note. Adapted from Fukushige, M., & Yunoue, H. (2006). "Valuing Medical Schools in Japan: National Versus Private Universities," by M. Fukushige and H. Yunoue, 2006, *Discussion Papers in Economics and Business 06-02*, p. 22.

3.3.2 Admission into Private-Funded Medical Schools in Japan

For admission into the 29 private medical schools, all prospective applicants must have passed the university entrance exam administered by the respective medical school and achieved high scores in several of the subject areas tested including: English language,

mathematics, and two or three natural sciences (biology, chemistry, physics, etc.). Most test items are generated by the respective medical schools which results in slight differences among tested areas for the natural sciences (Kozu, 2006). Although entrance exams are updated on a yearly basis, the difficulty level of the entrance examination for private-funded medical schools is consistently lower than for public-funded medical schools. This can be evinced by examining the overall entrance exam difficulty rank which combines both public and private-funded medical schools (see Table 3.2). Another significant difference between public-funded medical schools and private-funded medical schools are student tuition fees. For private-funded medical schools, the average six year tuition fee for a medical student until conferral of the M.D. degree is about 29,000,000 Yen (Fukushige & Yunoue, 2006). This is about ten times more than the average tuition fee for public-funded medical schools. As a result, it can be stated that there is less incentive for prospective medical students to apply for private-funded medical schools than for public-funded medical schools.

Table 3.2 *Top 10 Private-Funded Medical Schools by Exam Difficulty Level in 2005*

University	*Private Rank*	*Overall Rank*
Keio University	1	12
Nippon Medical University	2	26
Jichi Medical University	3	31
Osaka Medical College	4	32
Kansai Medical University	5	33
Showa University	6	44
Jikei University	7	45
University of O.E.H.*	8	54
Tokyo Medical University	9	57
Juntendo University	10	60

Note. *Occupational Environmental Health. Adapted from Fukushige, M., & Yunoue, H. (2006). "Valuing Medical Schools in Japan: National Versus Private Universities," by M. Fukushige and H. Yunoue, 2006, *Discussion Papers in Economics and Business 06-02*, p. 22.

3.4 Overview of Undergraduate Medical Education System in Japan

The undergraduate medical education system for medical doctors in Japan is based on a six year M.D. degree program typically consisting of two years of general education, two years of preclinical education, and two years of clinical education (Kozu, 2006;

Tokuda, Hinohara, & Fukui, 2008). However, there exists a certain degree of ambiguity with regards to the exact number of years of general education being offered at public and private-funded medical schools in Japan as the number of years can range from one to three years depending on the institutional goals. As a result, a national standard for general education curricula at Japanese medical schools does not exist though most medical schools seem to provide a combination of compulsory and elective general education courses. General education courses cover a broad range of natural and social science subjects including: biology, chemistry, physics, mathematics, world history, geography, Japanese language, and foreign languages such as English, French, or German. Similarly, the precise structure of the undergraduate medical curriculum differs from institution to institution though the number of medical schools with an integrated medical curricula consisting of courses organized by organ systems increased from 29% in 2001 (Shimura et al., 2004) to 41% in 2005 as a result of MEXT's 2001 guidelines for reforming Japanese medical education through the model core curriculum (Kozu, 2006). In contrast, the number of medical schools with a medical curricula consisting of courses organized by medical departments such as internal medicine or surgery decreased from 18% in 2001 (Shimura et al., 2004) to 11% in 2005 (Kozu, 2006). In addition to passing medical courses, all undergraduate medical students must pass a nation-wide Common Achievement Test (CAT) consisting of a six hour Computer-Based Test (CBT) on various medical disciplines and a thirty-five minute Objective Structured Clinical Examination (OSCE) at the end of

preclinical education since 2005. About 85% of medical schools also require medical students to acquire clinical skills and perform minor level tasks in the presence of a fully trained medical practitioner through on-site and off-site clinical clerkships during the clinical education phase (Kozu, 2006). At the end of clinical education, all medical students must pass the final paper-based graduation exam instituted by the respective medical school prior to conferral of the M.D. degree. National licensure can only be obtained by passing the nation-wide Japanese National Examination for Physicians held once a year in mid-February by the *Ministry of Health, Welfare, and Labor*. Afterwards, the successful examinee must undertake two years of mandatory residency (i.e. hospital) training before being allowed to practice medicine (Kozu, 2006).

3.5 Undergraduate EMP Education at Medical Schools in Japan

Information concerning undergraduate EMP education at university affiliated medical schools in Japan tends to be superficial and often limited to a description of the EMP program at a particular institution. The problem is further compounded as the information provided can often be out of date due to yearly changes to the EMP program. For example, Takada's (2012) description of the EMP program at a national university as of March, 2012, was out of date by April, 2013, after significant changes were implemented to the EMP program due to funding from MEXT's (2012) *Project for Global Human Resource Development*. Amongst the most significant changes was: (1) a reduction in the number of students per instructor through the introduction of a team-teaching format

with two instructors teaching a class of twenty students replacing the previous system of one instructor teaching a class of twenty-five students, (2) a decrease in the number of EMP classes per year for second year students from (n = 17) in 2012 to (n = 10) in 2013, and (3) an increase in the number of EMP classes per year for third year students from (n = 21) in 2012 to (n = 29) in 2013. However, the total number of EMP classes per year only slightly increases from (n = 45) in 2012 to (n = 46) in 2013. The relative low priority given to EMP classes compared to regular medical classes is reflected by the irregularity (i.e. uneven spread) of EMP classes across the academic year in the case of a national university for the period 2013 to 2014 (see Table 3.3). This situation is by no means unique and is reflected in other medical institutions as well. Additionally, there is a tendency amongst medical schools in Japan to limit the amount of funding available for medical education to the bare minimum due to the high daily costs involved in financing university hospitals and medical research. In the case of one national university, this was achieved through the combining of medical and dental EMP classes for the second (MD2) and third (MD3) year students.

Table 3.3 *EMP Classes at a National University in AY 2013-2014*

Date/Week	*Grade Level*	*Class Hours*	*Class Time*	*Lesson Focus*
April 11 (Thur)	MD3	11:10-12:00	50 min	Group Dynamics
April 18 (Thur)	MD2	11:10-12:00	50 min	Group Dynamics

May 16 (Thur)	MD2	11:10-12:00	50 min	Health Supplements
May 23 (Thur)	MD3	9:00-9:50	50 min	Toothache
June 20 (Thur)	MD3	9:00-9:50	50 min	Aging Society
June 27 (Thur)	MD3	9:00-9:50	50 min	Cosmetic Surgery
July 4 (Thur)	MD3	9:00-9:50	50 min	Gender Disorder
July 11 (Thur)	MD3	9:00-9:50	50 min	Placebos
July 18 (Thur)	MD3	9:00-9:50	50 min	Acupuncture
July 18 (Thur)	MD2	11:10-12:00	50 min	Hand Washing
July 25 (Thur)	MD3	9:00-9:50	50 min	Acne
July 25 (Thur)	MD2	11:10-12:00	50 min	Presentation Tips
Sept 19 (Thur)	MD3	9:00-9:50	50 min	Periodontal Disease
Sept 26 (Thur)	MD3	9:00-9:50	50 min	IV Drips
Oct 3 (Thur)	MD3	9:00-9:50	50 min	Multi-Tasking
Oct 3 (Thur)	MD2	10:05-12:00	115 min	Cadaver
Oct 8 (Tue)	M1	12:50-14:10	80 min	Hygiene Standards
Oct 10 (Thur)	MD3	9:00-9:50	50 min	HIV Babies
Oct 10 (Thur)	MD2	10:05-12:00	115 min	Medical Tourism
Oct 15 (Tue)	M1	12:50-14:10	80 min	Health Care Access
Oct 17 (Thur)	MD3	9:00-9:50	50 min	Vitamin C

Oct 22 (Tue)	M1	12:50-14:10	80 min	Vaccination
Oct 24 (Thur)	MD3	9:00-9:50	50 min	Stem-Cell Research
Oct 31 (Thur)	MD3	9:00-9:50	50 min	Non-Medical Treatments
Nov 7 (Thur)	MD3	9:00-9:50	50 min	Fluoridation
Nov 12 (Tue)	M1	12:50-14:10	80 min	Professionalism I
Nov 14 (Thur)	MD3	9:00-10:55	115 min	Nosocomial Infections
Nov 19 (Tue)	M1	12:50-14:10	80 min	Professionalism II
Nov 21 (Thur)	MD3	9:00-10:55	115 min	Doctor Deaths
Nov 26 (Tue)	M1	12:50-14:10	80 min	Professionalism III
Nov 28 (Thur)	MD3	9:00-9:50	50 min	Hand Washing
Nov 28 (Thur)	MD2	10:05-12:00	115 min	IVF
Dec 3 (Tue)	M1	12:50-14:10	80 min	Professionalism IV
Dec 5 (Thur)	MD3	9:00-9:50	50 min	Face Masks
Dec 5 (Thur)	MD2	10:05-12:00	115 min	Nosocomial Infections
Dec 12 (Thur)	MD3	9:00-10:55	115 min	Flu Shots
Dec 19 (Thur)	MD3	9:00-1055	115 min	MSF
Jan 9 (Thur)	MD3	9:00-10:55	115 min	Triage
Jan 16 (Thur)	MD3	9:00-10:55	115 min	Frailty
Jan 23 (Thur)	MD3	9:00-10:55	115 min	Bone Marrow

Jan 30 (Thur)	MD3	9:00-9:50	50 min	Organ Donation
Jan 30 (Thur)	MD2	10:05-12:00	115 min	Obesity
Feb 6 (Thur)	MD3	9:00-9:50	50 min	Down Syndrome I
Feb 6 (Thur)	MD2	10:05-12:00	115 min	Oral Care
Feb 13 (Thur)	MD3	9:00-9:50	50 min	Down Syndrome II
Feb 20 (Thur)	MD3	9:00-9:50	50 min	Surrogacy

Note. Adapted from the schedule for EMP classes provided to teachers at a national university for AY 2013 to 2014.

Table 3.3 also demonstrates wide variability in terms of class times and lesson focus, illustrating the lack of standardization amongst Japanese medical schools (and even within a single institution) with regards to EMP education at the undergraduate level. As a result, a comprehensive analysis of EMP education at the undergraduate level for all 80 medical schools in Japan is technically unviable. Instead, it is proposed to review undergraduate EMP education at public and private funded medical schools through an examination of educational factors that are relatively comparable across different institutions.

3.5.1 Undergraduate EMP Education at Public-Funded Medical Schools

Undergraduate EMP education at medical schools in national, public, and prefectural universities in Japan exhibits wide variability in terms of the number of years offered, the number of courses offered, the type of courses offered, when it is offered to

medical students (i.e. grade level), the format of courses (i.e. compulsory or elective), the number of classes, the duration of classes, the number of EMP teaching faculty, and the average number of students per class. Moreover, while some universities incorporate EMP education within their medical education department, other universities relies on general education departments or adjunct international exchange centers to provide EMP instruction. Furthermore, some universities do not provide any EMP instruction at all or are still in the process of establishing EMP courses. Even amongst the universities that do provide EMP instruction, courses are constantly being added or dropped as a result of institutional needs. Additionally, it needs to be pointed out that most national, public, and prefectural institutions schedule EMP courses on an irregular basis (e.g. once a week) due to primary emphasis being placed on clinical courses or examinations within the medical education curriculum. The result of all this is a complete lack of standardization amongst the public-funded medical schools in terms of EMP education. This makes the total dissemination of all affiliated medical schools at national, public, and prefectural universities with regards to EMP education problematic and impractical to a large extent. The closest such study to exist was a survey conducted in 2005 which encompassed most national universities in Japan and took four years to compile (Kimura, 2011). However, even this study was incomplete as major national universities such as *Osaka University*, *Tokyo Medical and Dental University*, or *the University of Tokyo* were omitted from the study. Still, in an effort to provide some means of comparison with regards to EMP

education amongst medical schools at the major national, public, and prefectural universities, an updated version of the previous study by Kimura (2011) is provided below (see Table 3.4). The following table provides information regarding EMP undergraduate education at major medical schools affiliated to national, public, and prefectural universities in Japan, though the list is by no means complete. Table 3.4 categorizes EMP education into factors that are relatively comparable across different institutions. EMP factors covered include the number of instructional years offered in total (iYears), when it is offered to medical students (mLevel), the format of courses (e.g. C = compulsory; E = elective), and the average number of students per class (cSize). It should be noted that the number of instructional years offered in total differs from the total number of instructional years offered, in that the former measures the actual number of instructional years offered in total by the institution, while as the latter measures the total number of instructional years spread across the institutional curriculum. As the curriculum differs from institution to institution, the former system of measurement is more accurate for comparisons across different institutions.

Table 3.4 *EMP Education at Major National/Public*/Prefectural** Medical Schools*

University	*EMP*	*iYears*	*mLevel*	*Format*	*cSize*
Akita University	Yes	1week	4	E	50
Asahikawa Medical University	Yes	3.5	1-4	C	2-50

Chiba University	Yes	0.5	2	C	95
Ehime University	Yes	2	2-4	C + E	25
Gifu University	Yes	1	1	C	20
Gunma University	No	–	–	–	–
Hirosaki University	Yes	1.5	1/2/4	C	40-50
Hokkaido University	No	–	–	–	–
Kagoshima University	Yes	1	1-2	E	20
Kanazawa University	Yes	1	1	C	25
Kochi University	Yes	0.5	3	E	15
Kobe University	Yes	3	2/3/5	C	14-35
Kumamoto University	Yes	1	2	C	50
Kyoto University	Yes	1	2	C	n/a
Kyushu University	Yes	n/a	2-4	C	100
Mie University	Yes	1.5	1-2	C	104
Nagasaki University	No	–	–	–	–
Nagoya University	No	–	–	–	–
Nara Medical University**	Yes	0.5	2	C	25-50
Niigata University	No	–	–	–	–
Oita University	Yes	1.25	1/4	C	50-100

Okayama University	Yes	1	1-2	C	25
Osaka University	Yes	1	2/4	C + E	n/a
Saga University	Yes	0.5	2	E	80
Sapporo Medical University*	Yes	1	3-4	C + E	25
Shimane University	Yes	1	1	C	8-10
Shinshu University	Yes	1	2	C	n/a
Tohoku University	Yes	1	3-4	C	15
Tokyo Medical and Dental University	Yes	2.5	1-4	C	20
University of Fukui	Yes	3	2-4	C + E	50-100
University of Miyazaki	Yes	4	1/2/4/5	C + E	10-20
University of the Ryukyus	Yes	0.5	2	C	4-5
University of Tokyo	Yes	1.5	1-3	C + E	5-40
University of Toyama	Yes	1	3-4	C	25
University of Tsukuba	Yes	2	2-3	E	n/a
University of Yamagata	Yes	1	3	E	30
Wakayama Medical University**	Yes	1.5	1-3	C	85
Yamanashi University	Yes	0.5	1	E	10-20

Note. Adapted from “Medical English Status Quo: March 2008 to March 2009 [Handout]”, by Y. Kimura, 2011, *Fourteenth Annual Japan Society for Medical English Education Conference*, pp. 1-4.

As can be evinced from Table 3.4, the majority of medical schools at national, public, and prefectural universities in Japan provides on average one instructional year of compulsory EMP education, followed by at least one instructional year of elective EMP education. Moreover, by restricting the scope to national universities with alumni who won the *Nobel Prize in Physiology or Medicine*, it is possible to obtain an idea of the required length of EMP education for educating high quality researchers at national medical schools. As of 2012, only *Kyoto University* (i.e. Susumu Tonegawa in 1987) and *Kobe University* (i.e. Shinya Yamanaka in 2012) have produced alumni with the *Nobel Prize in Physiology or Medicine* (Nobel Media AB, 2013). From the viewpoint of educating future Japanese *Nobel Prize Laureates in Physiology or Medicine*, it can be stated that the optimal number of instructional years for EMP education at national medical schools consists of one to three years of compulsory courses with EMP instruction starting from the second year of medical school. Although data for the average number of students per class for *Kyoto University* is not available, it can be presumed that small class sizes of 14 to 35 students in the case of *Kobe University* are more conducive for learning. However, due to the wide discrepancies in terms of EMP education in medical schools at national, public, and prefectural universities, any further generalizations derived from Table 3.4 needs to be avoided. Hence, a case-by-case approach is required by default when examining EMP instructional practices at national, public, and prefectural medical schools in Japan.

3.5.2 Undergraduate EMP Education at Private-Funded Medical Schools

As in the case of national, public, and prefectural universities, undergraduate EMP education at medical schools in private universities in Japan also exhibits wide variability in terms of the number of years offered, the number of courses offered, the type of courses offered, when it is offered to medical students (i.e. grade level), the format of courses (i.e. compulsory or elective), the number of classes, the duration of classes, the number of EMP teaching faculty, and the average number of students per class. Moreover, while some universities incorporate EMP education within their medical education department, other universities relies on general education departments or adjunct departments to provide EMP instruction. While most private universities do provide some form of EMP instruction; courses are constantly being added or dropped as a result of institutional needs. Similar to national institutions, most private institutions also schedule EMP courses on an irregular basis (e.g. once a week) due to primary emphasis being placed on clinical courses or examinations within the medical education curriculum. As a result, a lack of standardization is also evident amongst the private-funded medical schools in terms of EMP education. Therefore, the dissemination of all affiliated medical schools at private universities with regards to EMP education is equally problematic and impractical. Unfortunately, the lack of previous studies and the general reluctance of private medical schools to cooperate in third-party surveys for fears of divulging information that can be used to the benefit of other institutions further compound the problem. Though a

comprehensive analysis of EMP education in medical schools at private universities is impractical, it is still possible to compile a list of some of the major private medical schools based on open sources such as institutional publications or websites (see Table 3.5). The following table provides information regarding EMP undergraduate education at major medical schools affiliated to private universities in Japan, though the list is by no means complete. Table 3.5 categorizes EMP education into factors that are relatively comparable across different institutions. EMP factors covered include the number of instructional years offered in total (iYears), when it is offered to medical students (mLevel), the format of courses (e.g. C = compulsory; E = elective), and the average number of students per class (cSize). It should be noted that the number of instructional years offered in total differs from the total number of instructional years offered, in that the former measures the actual number of instructional years offered in total by the institution, while as the latter measures the total number of instructional years spread across the institutional curriculum. As the curriculum differs from institution to institution, the former system of measurement is more accurate for comparisons across different institutions.

Table 3.5 *EMP Education at Major Private Medical Schools*

University	*EMP*	*iYears*	*mLevel*	*Format*	*cSize*
Dokkyo Medical University	Yes	3	1-4	C	n/a
Jichi Medical University	Yes	2	2-3	E	20
Jikei University	Yes	3.5	1-4	C	10-15
Juntendo University	Yes	1	2	E	20-30
Kansai Medical University	Yes	0.5	3	C	n/a
Keio University	Yes	1	3	C	n/a
Kitasato University	Yes	2	2-3	C	20
Kyorin University	Yes	2	3-4	C	7-30
Nippon Medical University	Yes	0.5	2	C	25
Nihon University	Yes	5	1-6	C	4-120
Osaka Medical College	Yes	2.5	2-4	C	n/a
Showa University	Yes	2	3-4	C	n/a
Teikyo University	Yes	2.5	2-4	C	n/a
Toho University	Yes	2.5	2-4	C	17-21
Tokai University	Yes	1week	5	E	n/a
Tokyo Medical University	Yes	3.5	1-4	C	20-23
Tokyo Women’s Medical University	Yes	5	1-6	C	n/a

Note. Adapted from institutional websites, publications, and other open sources.

As can be seen from Table 3.5, the majority of medical schools at private universities in Japan provides on average three instructional years of compulsory EMP education, and no elective EMP education. Moreover, the total absence of private universities with alumni who won the *Nobel Prize in Physiology or Medicine* suggests that too much emphasis is placed on compulsory EMP courses with little room for promoting self-directed learning/research amongst medical students. From the viewpoint of educating future Japanese *Nobel Prize Laureates in Physiology or Medicine*, it can be stated that medical schools at private universities need to reduce the number of compulsory course years, and increase the number of elective course years with regards to EMP education. However, due to the wide discrepancies in terms of EMP education in medical schools at private universities, any further generalizations derived from Table 3.5 needs to be avoided. Hence, a case-by-case approach is required by default when examining EMP instructional practices at private medical schools in Japan.

Chapter 4

Methodology

4.1 Overview of Chapter 4

The central research question in this dissertation was to identify differences between senior year medical students with respect to EMP learner needs at a national medical school and private medical school in Japan. For this purpose, research was conducted over a one year period during the academic year (AY) of 2012 to 2013 involving: two universities (one national and one private), and 60 senior year medical students (30 national medical students and 30 private medical students). The research design was based on Creswell and Plano-Clark's (2007; 2011) mixed-methods research approach following the simultaneous triangulation design model. Due to the wide discrepancies between the two medical schools in terms of medical English education (e.g. curriculum, course objectives, course content, instructional hours, and learner characteristics), a predominantly quantitative (QUAN) approach was adopted towards data collection that allowed for EMP learner needs to be objectively compared through usage of a specifically designed questionnaire. In contrast, qualitative (qual) data was restricted to field notes from classroom observations in order to enable for comparisons to be made across different institutional programs. The research was divided according to Creswell (1994) consisting of a dominant QUAN phase involving an analysis of EMP learner needs using a specifically designed anonymous EMP questionnaire for medical students, and a

less dominant qual phase involving field notes taken during on-site classroom observations over a one year period. The data from the questionnaire were analyzed using both QUAN and qual methods. The data were primarily analyzed through descriptive statistics and independent *t*-tests using Microsoft Excel® 2010 software, in conjunction with field notes and findings from previous studies where relevant. In this chapter, section 4.2 provides information concerning the participatory institutions in this study. Section 4.3 provides information regarding the participants in the study. Section 4.4 provides an overview of the research design of the study. Section 4.5 addresses validity issues of the study. Section 4.6 addresses reliability issues of the study.

4.2 Institutions

For the purpose of providing a contrastive study of EMP instructional practices in Japan, permission was obtained from faculty at one national medical school and one private medical school for conducting classroom observations and data collection (see Appendix A). Both medical schools received funding from MEXT for the development and improvement of EMP instructional practices, and are regarded as model institutions in the field of EMP. University A (UA) was a top-tier national university located in the Tokyo region with an educational system of two years of general education, and four years of medical education for its medical school. In conjunction with five other universities, the medical school received funding from the *Ministry of Foreign Affairs* and MEXT for the establishment of a research center for promoting international cooperation and exchange in

2000 (Onishi, 2013). Furthermore, as a participatory university under MEXT's *Global 30 Project for Establishing University Network for Internationalization*, the institution is aiming to triple the number of courses conducted in English by the year 2020 (Nakagawa, 2013). In the AY 2012 to 2013, the medical school provided on average forty hours of compulsory EMP classroom instruction over a period of one year. EMP instruction was divided into one semester composed of eight EMP (i.e. Medical English I) classes for first-year medical (i.e. M1) students, and one semester composed of twelve EMP (i.e. Medical English II) classes for second-year medical (i.e. M2) students. Additionally, another twenty-four hours of elective EMP classroom instruction (i.e. Medical English III) was being offered to third-year medical (i.e. M3) students. All EMP courses were divided according to the students' English levels into three broad categories: advanced, intermediate, and beginner. The duration for each EMP class was fixed at two hours (120 minutes) with lessons being conducted using English only. The average number of students per class was (n = 22) with the same teacher teaching throughout the semester. As there was no standardized EMP curriculum at UA, course content was left to the teacher's discretion (see Appendix B), as well as meeting the following standardized course objectives for Medical English I and II (C. Holmes, personal communication, April 11, 2012):

Upon completion of these courses, medical students are expected to be able use English in the following contexts:

1. introducing themselves and their co-workers
2. giving and following instructions
3. using numbers and performing calculations
4. making short presentations and writing reports
5. asking and answering questions
6. obtaining, recording, and transmitting information
7. communicating with patients and their families about health concerns
8. establishing a relationship of trust with the patient
9. explaining medical conditions, diseases, and administrative procedures
10. ensuring that patients and co-workers understand all procedures

University B (UB) was a mid-tier private university located in the Tokyo region with an educational system of two and a half years of general education, and three and a half years of medical education for its medical school. The medical school received a *Gendai GP* grant from MEXT in the period 2004 to 2008 for the development of a clinical learning module for its third and fourth year EMP courses (Ashida & Noda, 2012). In the period 2012 to 2013, the medical school provided on average ninety hours of compulsory EMP classroom instruction over a period of four years. EMP instruction was divided into one semester composed of twenty-seven EMP (i.e. EMP I) classes and a minimum of four medical communication (i.e. doctor-patient interview) classes for first-year medical (i.e. M1) students, one semester composed of a minimum of four EMP (i.e. EMP II) classes for

second-year medical (i.e. M2) students, one semester composed of eight EMP (i.e. EMP III) classes for third-year medical (i.e. M3) students, and one semester composed of seventeen EMP (i.e. EMP IV) classes for fourth-year medical (i.e. M4) students. At the time of the study, there were no elective EMP courses within the university's curriculum. Additionally, there was no division of EMP courses according to the students' English levels. Consequently, all students' enrolled in the compulsory EMP courses were of mixed English levels. The duration for each EMP class was fixed at one and a half hours (90 minutes) with lessons being conducted using a mixture of English and Japanese. The average number of students per class was (n = 22) with different teachers teaching the first and second semesters. As UB employed a standardized EMP curriculum, course content was dependent upon meeting the different objectives for each of the courses (see Appendix C). The following course objectives applied for EMP III and IV (Department of International Medical Communications, 2012):

Upon completion of these courses, medical students are expected to be able use English in the following contexts:

1. defining key medical practices through understanding of clinical concepts
2. communicating with patients through understanding of medical interviews
3. understanding medical journal format and content through selected readings
4. presenting and asking questions though interviews with a clinician

4.3 Participants

The participants (n = 60) in this study were senior year medical students from two university affiliated medical schools in the Tokyo region. The participants were divided into two groups consisting of (n = 30) senior year medical students from a national university (UA), and (n = 30) senior year medical students from a private university (UB). Brown (2001) emphasized that a sample size of twenty-eight to thirty was the minimum number needed to conduct statistical analysis for a representative sample of the population. All participants from UA had successfully completed two years of compulsory general education courses, and half semester compulsory EMP courses at the M1 and M2 level prior to participating in the study. Hence, responses were obtained from (n = 30) M3 students with mixed English levels at UA. In contrast, all participants from UB had successfully completed one and a half years of compulsory general education courses, one semester of compulsory EMP course at the M1 level, half a semester of compulsory EMP courses at the M2 and M3 levels, and one semester of compulsory EMP course at the M4 level prior to participating in the study. Hence, responses were obtained from (n = 30) M4 students with mixed English levels at UB. Therefore, all participants had completed (or was in the process of completing) their EMP education at their respective institutions prior to participating in the study.

4.4 Research Design

This study employed a mixed-methods research approach as advocated by Creswell and Plano-Clark (2007; 2011). The research design followed the simultaneous triangulation design model (Creswell, 1994; 2003) consisting of a dominant QUAN phase and a less dominant qual phase. Creswell (1994) advocated usage of the simultaneous triangulation design model for research studies of an exploratory nature with little or no previous research having been conducted in the area. In the simultaneous triangulation design model, the researcher conducts a QUAN investigation of the area under study using quantifiable variables that allows for consistent measurements to be made throughout the entire study period. At the same time, qual data is collected separately in order to help confirm or contradict the results from the QUAN study. The main benefit of the simultaneous triangulation design model over other design models is that it helps eliminate any bias the researcher may have acquired during the study period. This is especially important with small scale surveys as the researcher's bias may negatively influence the research direction or results of the study (Brown, 2001).

4.5 Instruments

The questionnaire employed in this study was developed along construct guidelines as advocated by Rossett (1982) and Brown (2001) who stressed the need for adopting a layered approach towards item design and sequencing. In order to ensure that all significant issues were covered in the questionnaire, they emphasized the need to

categorize and sequence items along five basic types: (1) problem identification-type questions, (2) learning priority-type questions, (3) learner ability-type questions, (4) learner attitude-type questions, and (5) solution identification-type questions. However, because item design was mainly dependent upon respondent characteristics and what was being investigated, a case-by-case approach was adopted with regards to sequencing in order to maintain high content validity. Likewise, collection and measurement of data within the questionnaire was dependent upon several factors as highlighted by Taylor-Powell (1998) including: the type of question, the amount of differentiation needed, the respondents' capacity for answering, and the need to reduce response times. As a result, a case-by-case approach was also applied with regards to the type of measurement used for the questionnaire. In common with most methodological research advocating usage of Likert scales for questionnaires in the social sciences (Oppenheim, 1992; Busch, 1993; Turner, 1993; Fanning, 2005) and health sciences (Bowling, 1997; Burns & Grove, 1997), this form of measurement was predominantly used within the design of the questionnaire. However, because questionnaires administered at the *University of Hawai'i at Manoa* had shown that usage of odd-numbered Likert scales such as 3 or 5 resulted in a preponderance of neutral no-responses down the middle of the scale, Brown (2001) strongly advocated usage of even-numbered Likert scales for all items of this type. Consequently, a four point Likert scale of 0 to 3 was adopted for all items of this type within the questionnaire. The main reason for this choice (as opposed to a six point Likert scale) was that it allowed for

ease of scoring within a limited time frame. However, researchers over the years have pointed out several problems regarding the use of Likert scales (Dijkstra & van der Zouwen, 1982; Fowler & Mangione, 1990; Low, 1999). In particular, because respondents are required to react to statements in a desired manner, their responses are very often preconditioned. This makes it difficult to account for inconsistencies or errors that are socially motivated (Sakui & Gaies, 1998). Separation between desired response outcomes and actual responses highlights the need for other forms of measurement to be included. Specifically, McKeown and Thomas (1988) recommended the usage of rank-ordering items (e.g. Q-sort) in conjunction with Likert scales, in order to accurately assess factors like priority levels or critical reasoning. As a result, usage of multiple forms of measurement is required in order to achieve accuracy of responses over a broad range of issues. For the purposes of this study, several forms of measurement were used in the questionnaire including: close-ended single answer items, Likert scale items, and Q-sort type items. These items shall be treated separately with respect to the questionnaire in section 4.5.1.

4.5.1 Anonymous EMP Questionnaire for Medical Students

The anonymous EMP student questionnaire (SQ) was a self-designed instrument for quantitatively measuring learner abilities, attitudes, beliefs, preferences, and priorities across different institutions. The questionnaire was derived from components of Chia et al. (1999) survey instrument for measuring the English language needs of Taiwanese medical

students. However, because the original instrument was only designed for measuring EMP contexts encountered at one Taiwanese university, its applicability for comparative measurements across different institutions was limited. Consequently, a new instrument had to be developed which incorporated design features that allowed for comparative measurements to be made across different institutions in order to meet the research requirements of this study. For the purposes of this study, selected items from previous instruments (Chia et al, 1999; Hwang & Lin, 2010) were modified and expanded to meet the teaching and learning environment encountered in EMP classes at Japanese institutions. Additionally, identification of lesson phases and task types encountered during EMP classroom instruction was achieved through adoption of Byrne's (1987) classification system for classroom activities. Under the system, activities were categorized according to their degree of control by the teacher into four broad areas: teacher-centered activities focusing on accuracy (e.g. pronunciation drills), teacher-centered activities focusing on fluency (e.g. brainstorming), learner-centered activities focusing on accuracy (e.g. practicing of model dialogue), and learner-centered activities focusing on fluency (e.g. group discussion). Where possible, the questionnaire followed construct guidelines for item design and sequencing as advocated by Rossett (1982) and Brown (2001). A total of eighteen items were developed, of which seven were closed-ended single answer items, seven were Likert type items, and four were Q-sort type items (see Appendix D). Because the student questionnaire needed to be translated from English to Japanese in order to meet

the language levels of respondents, piloting of items was necessary prior to implementation (see Appendix E). Piloting of items was conducted with six medical students at UA, and two full-time faculty at UB. No major changes were required with the exception of slight re-wording of items 7 and 18 in order to facilitate student understanding of items.

4.5.2 Field Notes

Qual data was collected separately in the form of field notes taken during on-site observations of EMP classes at UA and UB during the AY 2012 to 2013. Brown (2001) advocated the importance of observations as a means of data collection as it involves "direct on-the-spot examination of language use, learning, or training" (p. 4). For UA, a total of thirty-two M2 classes (64 hours) and sixteen M1 classes (32 hours) were observed with field notes taken for each class (see Appendix B). For UB, a total of fifteen M4 classes (22.5 hours) and eight M3 classes (12 hours) were observed with field notes taken for each class (see Appendix C). Field notes consisted of a combination of structured and open-ended notes taken during the lesson by the researcher (see Appendix F). The use of structured and open-ended notes allowed for direct comparisons to be made across different institutions and courses. The structured notes were based on lesson phases and transitions derived from Wajnryb's (1992) *Classroom Observation Tasks* which enabled for accurate record-keeping of instructional events. Identification of lesson phases and task types encountered during EMP classroom instruction was achieved through adoption of Byrne's (1987) classification system for classroom activities. The open-ended notes were

designed to supplement the structured notes by enabling the recording of information not directly related to the lesson.

4.6 Data Collection and Analysis

Data was collected over a one year period from AY 2012 to 2013 encompassing both QUAN survey data from a sample of respondents at UA and UB, and qual field notes based on prolonged observations of EMP classes at UA and UB. As a result of data collection restrictions, the questionnaire was self-administered on a voluntary basis to medical students outside of class at UA, and administered on a voluntary basis to medical students in class by two teachers at UB during the AY 2012 to 2013. All calculations were performed using Microsoft Excel® 2010 software. QUAN data analysis involved the calculation of descriptive statistics including: mean, mode, median, range, and standard deviation scores. QUAN reliability of responses was measured through an independent two-tailed *t*-test for two population means of equal variances with the alpha decision level set at $\alpha < .05$ (Brown, 2001; Kanji, 1999). The independent *t*-test is used to determine the probability that the difference between two means is statistically significant at a specified alpha level for two different populations (Brown, 2001). It was necessary to adopt a two-tailed decision with the alpha decision level set at $\alpha < .05$ as there was no theoretical basis for expecting either a negative or positive correlation coefficient due to insufficient research in the area.

Qual reliability of responses was assessed through prolonged observations (Davis, 1992; 1995) consisting of repeated observations of all EMP classes over a one year period to check for any inconsistencies introduced by the respondents or researcher. Interpretation of results was verified through member checking (Denzin, 1994) consisting of prolonged discussions between one medical student, and the researcher. Lastly, data triangulation (Denzin, 1978) was performed by analyzing data sets from multiple sources (e.g. previous research studies, survey responses, and field notes) to eliminate potential biases introduced by the students or the researcher.

Chapter 5

Results

5.1 Overview of Chapter 5

This chapter presents the results for the questionnaire administered to senior year medical students at a national university affiliated medical school and private university affiliated medical school. Responses were obtained from M3 students (n = 30) at UA and M4 students (n = 30) at UB. Although respondents at UA and UB were from different grade levels as a result of differences in the institutional curricula, both had recently completed (or was in the process of completing) their EMP education at their respective institutions. Therefore, a degree of overlap could be expected in the responses obtained between the two sample learner populations. The data from the questionnaire were analyzed through a combination of descriptive statistics and *t*-test scores. Section 5.2 provides a comparative analysis of QUAN data from the student questionnaire through a comprehensive breakdown of each item to allow for comparison between data sets and facilitate readability. Sections 5.2 to 5.15 examine items covered in the student questionnaire through analyses of mean, standard deviation, and *t*-test scores.

5.2 Learners' Experiences (SQ1 to SQ5)

Comparative analyses of mean, standard deviation, and *t*-test scores for the learners' experiences section revealed the following results for items SQ1 to SQ5 (see Table 5.1).

Table 5.1 *Statistics for SQ1 to SQ5 Learners' Experiences at University A and University B*

	UA			*UB*					
	Mean	*SD*	*N*	*Mean*	*SD*	*N*	*t*	*Df*	*p*
SQ1	1.37	0.80	30	2.07	0.81	30	-3.31	58	0.002*
SQ2	2.30	0.78	30	1.57	0.80	30	3.52	58	0.001*
SQ3	1.43	0.84	30	0.77	0.62	30	3.44	58	0.001*
SQ4	0.87	0.72	30	1.13	0.76	30	-1.37	58	0.176
SQ5	1.77	0.62	30	1.73	0.77	30	0.18	58	0.856

*$p < .05$.

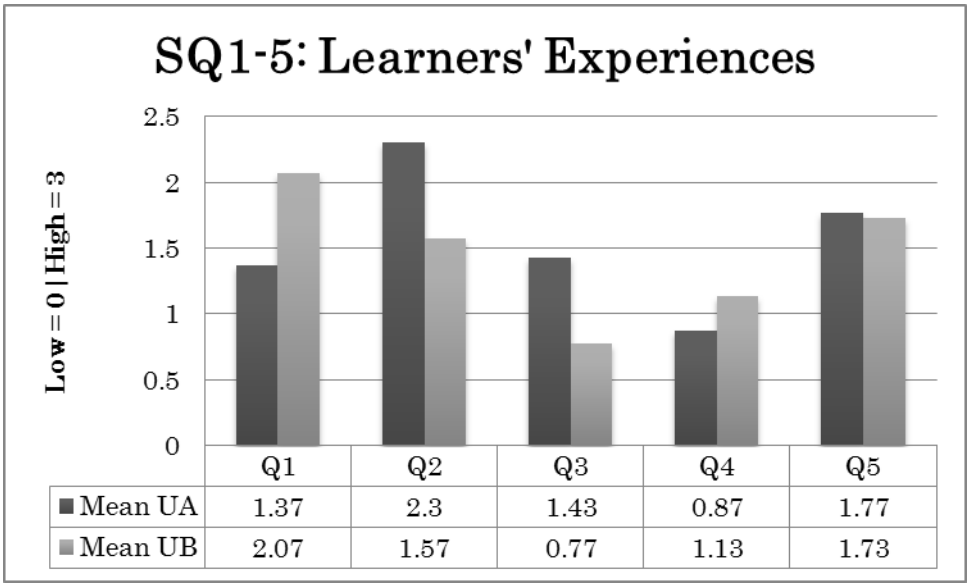


Figure 5.1 Comparative analyses of mean scores for SQ1 to SQ5 learners' experiences at University A and University B

For item SQ1, it was found that the degree of satisfaction amongst senior year medical students regarding the adequacy of explanations provided by the teacher for completing classroom tasks at UA (M = 1.37, SD = 0.80) and UB (M = 2.07, SD = 0.81) was significantly different for the two sample populations (t = -3.31, p < .05). For item SQ2, it was found that the degree of importance placed by senior year medical students on the English language for their medical studies at UA (M = 2.30, SD = 0.78) and UB (M = 1.57, SD = 0.80) was significantly different for the two sample populations (t = 3.52, p < .05). For item SQ3, it was found that the amount of English usage by senior year medical students during their medical studies at UA (M = 1.43, SD = 0.84) and UB (M = 0.77, SD = 0.62) was significantly different for the two sample populations (t = 3.44, p < .05). For item SQ4, it was found that the amount of English practice received by senior medical students during classes at the university's medical school at UA (M = 0.87, SD = 0.72) and UB (M = 1.13, SD = 0.76) was not significantly different for the two sample populations (t = -1.37, p > .05). For item SQ5, it was found that the level of (medical English) tasks were relatively consistent with students' English language levels at UA (M = 1.77, SD = 0.62) and UB (M = 1.73, SD = 0.77) with no significant difference between the two sample populations (t = 0.18, p > .05). Hence, results showed significant differences between the two sample learner populations for items SQ1, SQ2, and SQ3 indicating certain dissimilarities between senior year medical students at the two institutions . In contrast, no significant differences between the two sample learner populations for items SQ4 and SQ5

indicate certain similarities between senior year medical students at both institutions.

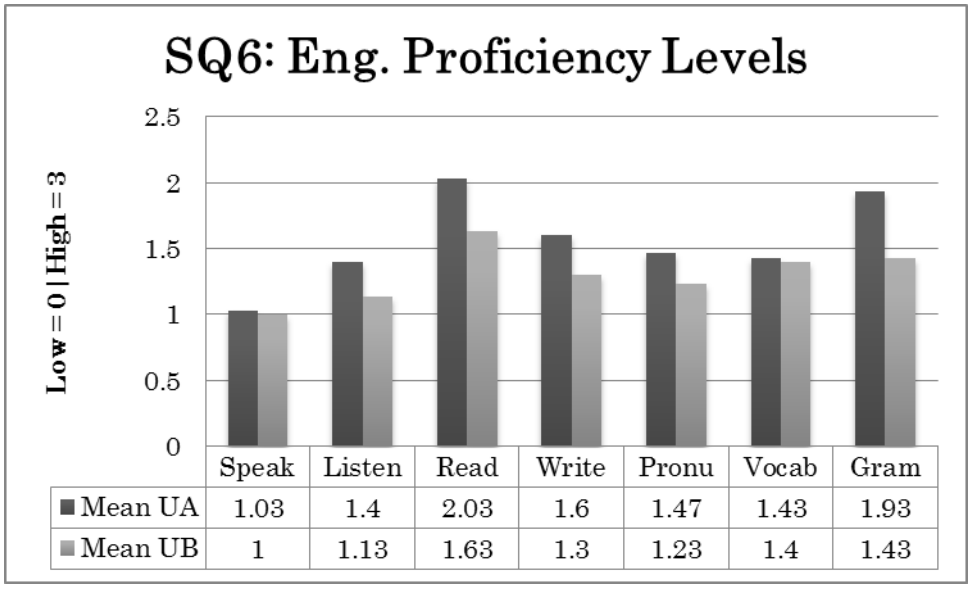
5.3 Learners' Self-Assessed English Language Proficiency Levels (SQ6)

Comparative analyses of mean, standard deviation, and *t*-test scores regarding learners' self-assessed English language proficiency levels revealed the following results for item SQ6 (see Table 5.2).

Table 5.2 *Statistics for Learners' Self-Assessed English Language Proficiency Levels at University A and University B*

	UA			*UB*					
	Mean	*SD*	*N*	*Mean*	*SD*	*N*	*t*	*df*	*p*
Speak	1.03	0.87	30	1.00	0.82	30	0.15	58	0.881
Listen	1.40	0.84	30	1.13	0.85	30	1.20	58	0.233
Read	2.03	0.55	30	1.63	0.75	30	2.32	58	0.024*
Write	1.60	0.71	30	1.30	0.78	30	1.53	58	0.132
Pronu	1.47	0.81	30	1.23	0.88	30	1.05	58	0.297
Vocab	1.43	0.67	30	1.40	0.66	30	0.19	58	0.849
Gram	1.93	0.77	30	1.43	0.80	30	2.42	58	0.019*

*$p < .05$.



	Speak	Listen	Read	Write	Pronu	Vocab	Gram
Mean UA	1.03	1.4	2.03	1.6	1.47	1.43	1.93
Mean UB	1	1.13	1.63	1.3	1.23	1.4	1.43

Figure 5.2 Comparative analyses of mean scores for learners' self-assessed English language proficiency levels at University A and University B

It was found that the majority of senior year medical students surveyed at UA (M = 1.03, SD = 0.87) and UB (M = 1.00, SD = 0.82) rated their speaking skills as being insufficient with no significant difference between the two sample populations ($t = 0.15$, $p > .05$). Similarly, most senior year medical students at UA (M = 1.40, SD = 0.84) and UB (M = 1.13, SD = 0.85) rated their listening skills as being insufficient with no significant difference between the two sample populations ($t = 1.20$, $p > .05$). In contrast, reading skills were rated as being sufficient by the majority of senior year medical students at UA (M = 2.03, SD = 0.55) and UB (M = 1.63, SD = 0.75) with significant differences between the two sample populations ($t = 2.32$, $p < .05$). However, writing skills were rated as being slightly below reading skills by the majority of senior year medical students at UA (M = 1.60, SD = 0.71) and at UB (M = 1.30, SD = 0.78) with no significant difference between

the two sample populations (t = 1.53, p > .05). A similar proportion of senior year medical students at UA (M = 1.47, SD = 0.81) and UB (M = 1.23, SD = 0.88) rated their pronunciation skills as being slightly insufficient with no significant difference between the two sample populations (t = 1.05, p > .05). Similarly, an equal proportion of senior year medical students at UA (M = 1.43, SD = 0.67) and UB (M = 1.40, SD = 0.66) rated their vocabulary skills as being slightly insufficient with no significant difference between the two sample populations (t = 0.19, p > .05). However, grammar skills were rated as being either sufficient or insufficient by the majority of senior year medical students at UA (M = 1.93, SD = 0.77) and UB (M = 1.43, SD = 0.80) with significant differences between the two sample populations (t = 2.42, p < .05). Hence, results showed no significant differences between the two sample learner populations for speaking, listening, writing, pronunciation, and vocabulary skills indicating perceived difficulties in the area for a similar proportion of senior year medical students at both institutions. In contrast, significant differences between the two sample learner populations for reading skills and grammar skills indicates perceptual differences between senior year medical students at the two institutions with students at UB perceiving the areas as being slightly more difficult than their counterparts at UA. Overall, the results showed that self-assessed proficiency levels for most English language skills (with the exception of reading skills) were perceived to be insufficient by the majority of senior year medical students surveyed at UA and UB.

5.4 Learners' Self-Assessed EMP Proficiency Levels (SQ7)

Comparative analyses of mean, standard deviation, and *t*-test scores regarding learners' self-assessed EMP proficiency levels revealed the following results for item SQ7 (see Table 5.3).

Table 5.3 *Statistics for Learners' Self-Assessed EMP Proficiency Levels at University A and University B*

	UA			*UB*					
	Mean	*SD*	*N*	*Mean*	*SD*	*N*	*t*	*df*	*p*
MOC	0.87	0.81	30	0.93	0.85	30	-0.31	58	0.761
MT	1.13	0.62	30	1.10	0.75	30	0.19	58	0.854
SW	0.80	0.54	30	0.53	0.67	30	1.67	58	0.101
SCS	0.90	0.65	30	0.53	0.72	30	2.04	58	0.046*

*$p < .05$.

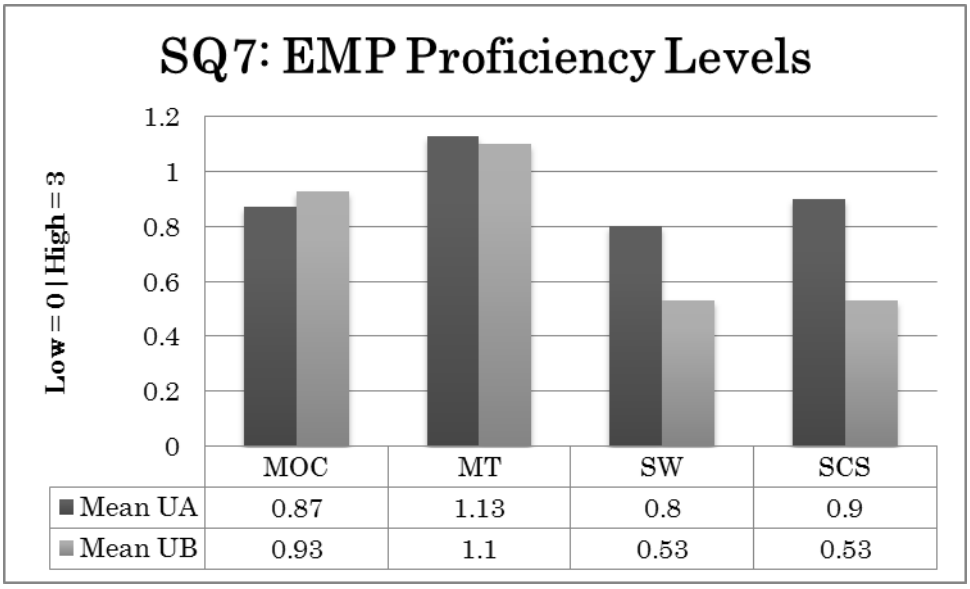


Figure 5.3 Comparative analyses of mean scores for learners' self-assessed EMP proficiency levels at University A and University B

It was found that the majority of senior year medical students surveyed at UA (M = 0.87, SD = 0.81) and UB (M = 0.93, SD = 0.85) rated their medical oral communication (MOC) skills as being insufficient with no significant difference between the two sample populations (t = -0.31, p > .05). Similarly, a majority of senior year medical students surveyed at UA (M = 1.13, SD = 0.62) and UB (M = 1.10, SD = 0.75) rated their medical terminology (MT) skills as being insufficient with no significant difference between the two sample populations (t = 0.19, p > .05). Furthermore, a large proportion of senior year medical students at UA (M = 0.80, SD = 0.54) and UB (M = 0.53, SD = 0.67) rated their scientific writing (SW) skills as being insufficient with no significant difference between the two sample populations (t = 1.67, p > .05). Equally, most senior year medical students surveyed at UA (M = 0.90, SD = 0.65) and UB (M = 0.53, SD = 0.72) rated their case study problem-solving (SCS) skills as being insufficient with significant differences between the two sample populations (t = 2.04, p < .05). Hence, results showed no significant differences between the two sample learner populations for medical oral communication, medical terminology, and scientific writing skills indicating perceived difficulties in the area for a similar proportion of senior year medical students at both institutions. In contrast, significant differences between the two sample learner populations for case study problem-solving skills indicates perceptual differences between senior year

medical students at the two institutions with students at UB perceiving the area as being slightly more difficult than their counterparts at UA. Overall, the results showed that self-assessed proficiency levels for all four EMP skills were perceived to be insufficient by the majority of senior year medical students surveyed at UA and UB.

5.5 Learners' English Study Hours Outside of Class (SQ8)

Comparative analyses of mean, standard deviation, and *t*-test scores regarding the amount of hours per week senior year medical students spend studying English outside of class revealed the following results for item SQ8 (see Table 5.4).

Table 5.4 *Statistics for the Amount of Hours Students Spend Studying English Outside of Class at University A and University B*

	UA			*UB*					
	Mean	*SD*	*N*	*Mean*	*SD*	*N*	*t*	*df*	*p*
0-1hrs	0.50	0.50	30	0.87	0.34	30	-3.27	58	0.002*
1-3hrs	0.27	0.44	30	0.13	0.34	30	1.29	58	0.203
3-6hrs	0.17	0.37	30	0	0	30	2.41	58	0.019*
6-12hrs	0.07	0.25	30	0	0	30	1.44	58	0.155

*$p < .05$.

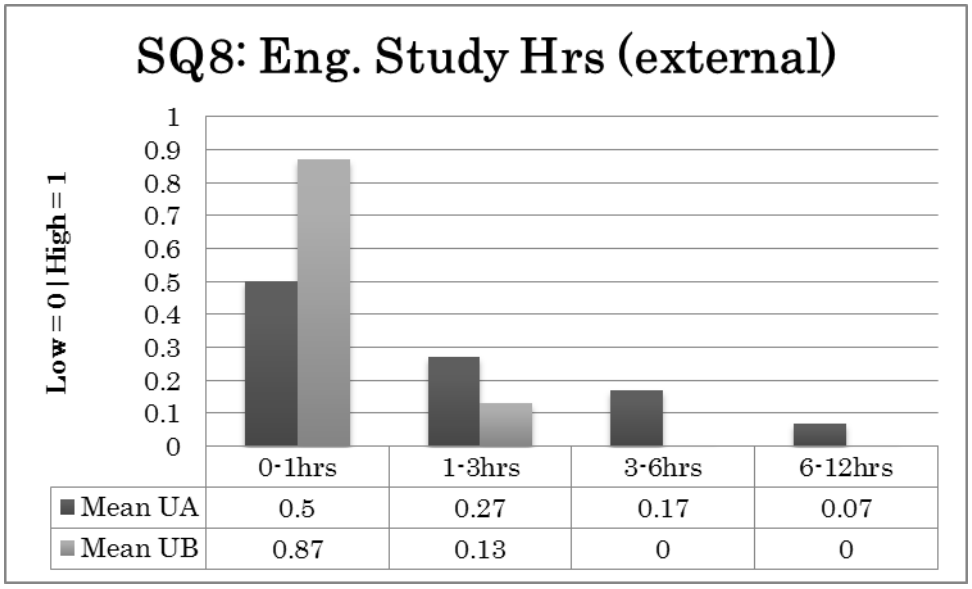


Figure 5.4 Comparative analyses of mean scores for the amount of hours students spend outside of class studying English at University A and University B

It was found that the majority of senior year medical students surveyed at UA (M = 0.50, SD = 0.50) and UB (M = 0.87, SD = 0.34) spend less than one hour per week studying English outside of the classroom with significant differences between the two sample populations (t = -3.27, p < .05). Conversely, a small proportion of senior year medical students at UA (M = 0.27, SD = 0.44) and UB (M = 0.13, SD = 0.34) spend between one to three hours per week studying English outside of the classroom with no significant differences between the two sample populations (t = 1.29, p > .05). Results also showed a gradual decline amongst senior year medical students at UA (M = 0.17, SD = 0.37) and UB (M = 0.00, SD = 0.00) studying English outside of class for between three to six hours per week with significant differences between the two sample populations (t = 2.41, p < .05). This decline was further pronounced amongst senior year medical students

at UA (M = 0.07, SD = 0.25) and UB (M = 0.00, SD = 0.00) studying English outside of class for between six to twelve hours per week with no significant differences between the two sample populations (t = 1.44, p > .05). Hence, results showed significant differences between the two sample learner populations amongst students studying English outside of class for less than one hour per week, and between three to six hours per week indicating certain dissimilarities between senior year medical students at the two institutions. In contrast, no significant differences between the two sample learner populations amongst students studying English outside of class for between one to three hours per week, and six to twelve hours per week indicate certain similarities between senior year medical students at the two institutions. Overall, the results showed a preponderance of responses amongst senior year medical students at UA and UB studying less than one hour per week of English outside the classroom.

5.6 Learners' Preferred Number of Years of English Education (SQ9)

Comparative analyses of mean, standard deviation, and *t*-test scores regarding the number of years for English language education recommended by senior year medical students revealed the following results for item SQ9 (see Table 5.5).

Table 5.5 *Statistics for Learners' Preferred Number of Years of English Education at University A and University B*

	UA			*UB*					
	Mean	*SD*	*N*	*Mean*	*SD*	*N*	*t*	*df*	*p*
0yrs	0.07	0.25	30	0.27	0.44	30	-2.12	58	0.038*
1yr	0.07	0.25	30	0.13	0.34	30	-0.85	58	0.398
2yrs	0.37	0.48	30	0.27	0.44	30	0.82	58	0.414
3yrs	0.10	0.30	30	0.07	0.25	30	0.46	58	0.647
4yrs	0.13	0.34	30	0.07	0.25	30	0.85	58	0.398
5yrs	0.03	0.18	30	0	0	30	1.00	58	0.321
6yrs	0.23	0.42	30	0.20	0.40	30	0.31	58	0.759

*$p < .05$.

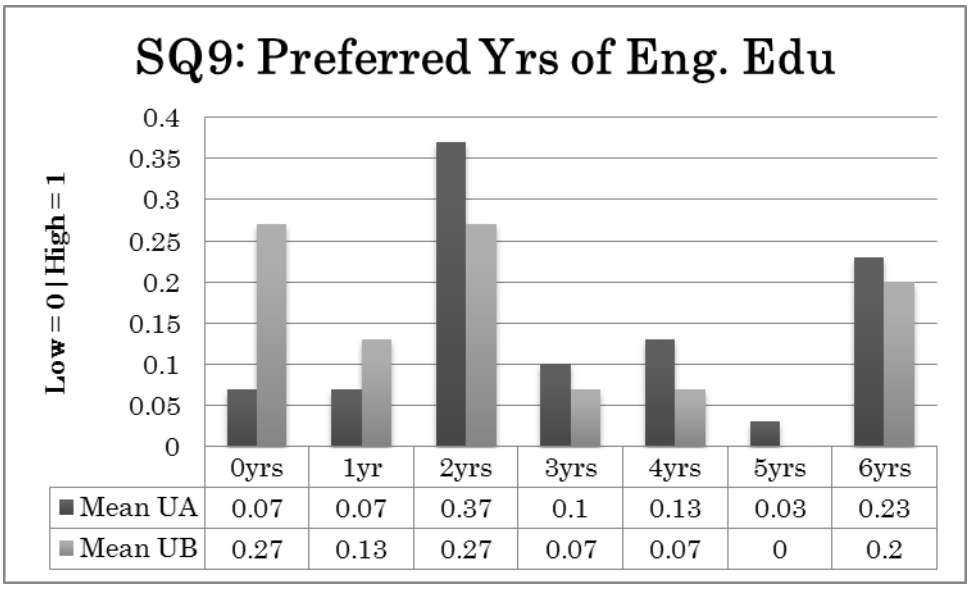


Figure 5.5 Comparative analyses of mean scores for learners' preferred number of years of

English education at University A and University B

It was found that the majority of senior year medical students at UA (M = 0.37, SD = 0.48) and UB (M = 0.27, SD = 0.44) regarded two years of English language education at medical school as being optimal with no significant differences between the two sample populations ($t = 0.82$, $p > .05$). This was followed by a smaller proportion of senior year medical students at UA (M = 0.23, SD = 0.42) and UB (M = 0.20, SD = 0.40) who advocated six years of English language education at medical schools with no significant differences between the two sample populations ($t = 0.31$, $p > .05$). However, a proportion of senior year medical students at UA (M = 0.07, SD = 0.25) and UB (M = 0.27, SD = 0.44) indicated that there was no need for English language education at medical schools with significant differences between the two sample populations ($t = -2.12$, $p < .05$). Furthermore, results showed that only a small proportion of senior year medical students at UA (M = 0.07, SD = 0.25) and UB (M = 0.13, SD = 0.34) recommended one year of English language education at medical schools with no significant differences between the two sample populations ($t = -0.85$, $p > .05$). This was also evident amongst senior year medical students at UA (M = 0.13, SD = 0.34) and UB (M = 0.07, SD = 0.25) recommending four years of English language education at medical schools with no significant differences between the two sample populations ($t = 0.85$, $p > .05$). Results also revealed a decline in the number of senior year medical students at UA (M = 0.10, SD = 0.30) and UB (M = 0.07, SD = 0.25) recommending three years of English language

education at medical schools with no significant differences between the two sample populations ($t = 0.46$, $p > .05$). This decline was further evident in the number of senior year medical students at UA (M = 0.03, SD = 0.18) and UB (M = 0.00, SD = 0.00) recommending five years of English language education at medical schools with no significant differences between the two sample populations ($t = 1.00$, $p > .05$). Hence, results showed significant differences between the two sample learner populations amongst students recommending that there was no need for English language education at medical schools indicating certain dissimilarities for a proportion of senior year medical students at the two institutions. In contrast, no significant differences between the two sample learner populations were evident amongst responses for the other choices indicating certain similarities between senior year medical students at the two institutions. Overall, the results showed a preponderance of responses amongst senior year medical students at UA and UB recommending two years of English language education at medical schools.

5.7 Learners' Preferred Number of Years of EMP Education (SQ10)

Comparative analyses of mean, standard deviation, and *t*-test scores regarding the number of years for medical English education recommended by senior year medical students revealed the following results for item SQ10 (see Table 5.6).

Table 5.6 *Statistics for Learners' Preferred Number of Years of EMP Education at University A and University B*

	UA			*UB*					
	Mean	*SD*	*N*	*Mean*	*SD*	*N*	*t*	*df*	*p*
0yrs	0	0	30	0.03	0.18	30	-1.00	58	0.321
1yr	0.10	0.30	30	0.03	0.18	30	1.03	58	0.309
2yrs	0.30	0.46	30	0.43	0.50	30	-1.06	58	0.292
3yrs	0.17	0.37	30	0.20	0.40	30	-0.33	58	0.744
4yrs	0.20	0.40	30	0.23	0.42	30	-0.31	58	0.759
5yrs	0	0	30	0	0	30	n/a	58	n/a
6yrs	0.23	0.42	30	0.07	0.25	30	1.83	58	0.073

*$p < .05$.

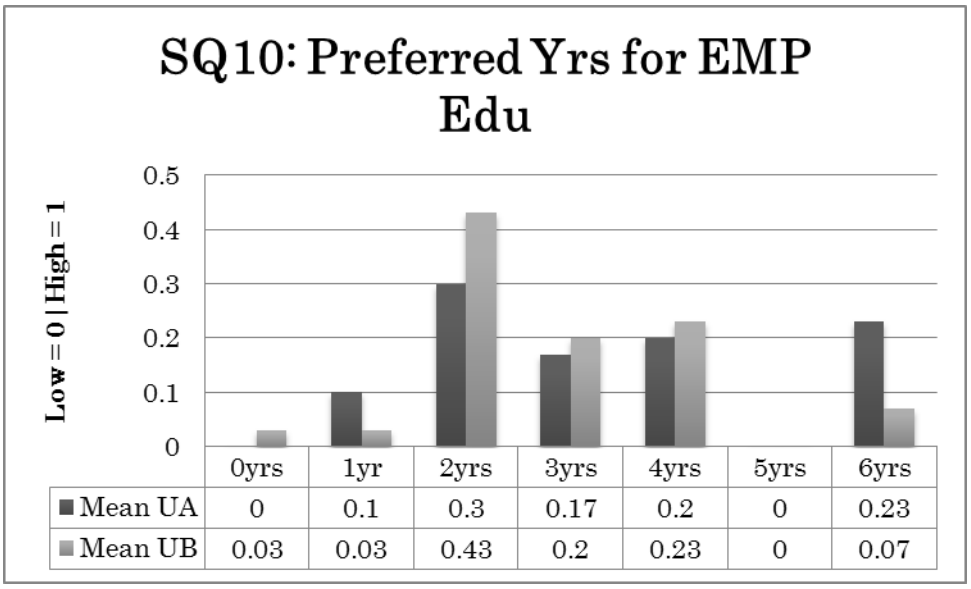


Figure 5.6 Comparative analyses of mean scores for learners' preferred number of years of

EMP education at University A and University B

It was found that the majority of senior year medical students at UA (M = 0.30, SD = 0.46) and UB (M = 0.43, SD = 0.50) regarded about two years of medical English education at medical school as being optimal with no significant differences between the two sample populations (t = -1.06, p > .05). This was followed by a smaller proportion of senior year medical students at UA (M = 0.20, SD = 0.40) and UB (M = 0.23, SD = 0.42) who advocated four years of medical English education at medical schools with no significant differences between the two sample populations (t = -0.31, p > .05). A slightly lower proportion of senior year medical students at UA (M = 0.17, SD = 0.37) and UB (M = 0.20, SD = 0.40) indicated preference for three years of medical English education at medical schools with no significant differences between the two sample populations (t = -0.33, p > .05). Similarly, only a small proportion of senior year medical students at UA (M = 0.23, SD = 0.42) and UB (M = 0.07, SD = 0.25) indicated preference for six years of medical English education at medical schools with no significant differences between the two sample populations (t = 1.83, p > .05). Results also revealed a decline in the number of senior year medical students at UA (M = 0.10, SD = 0.30) and UB (M = 0.03, SD = 0.18) recommending one year of medical English language education at medical schools with no significant differences between the two sample populations (t = 1.03, p > .05). This decline was further evident in the number of senior year medical students at UA (M = 0.00, SD = 0.00) and UB (M = 0.03, SD = 0.18) recommending no medical English language

education at medical schools with no significant differences between the two sample populations (t = -1.00, p > .05). No responses were recorded amongst senior year medical students at UA and UB for five years of medical English language education at medical schools. Hence, results showed no significant differences between the two sample learner populations indicating certain similarities between senior year medical students at the two institutions. Overall, the results showed a preponderance of responses amongst senior year medical students at UA and UB recommending two years of medical English education at medical schools.

5.8 Learners' Preferred Lesson Orientation Format (SQ11)

Comparative analyses of mean, standard deviation, and *t*-test scores regarding preferred lesson orientation format by senior year medical students revealed the following results for item SQ11 (see Table 5.7).

Table 5.7 *Statistics for Learners' Preferred Format of Lessons at University A and University B*

	UA			*UB*					
	Mean	*SD*	*N*	*Mean*	*SD*	*N*	*t*	*df*	*p*
TCA	0.17	0.37	30	0.27	0.44	30	-0.93	58	0.356
TCF	0.23	0.42	30	0.27	0.44	30	-0.29	58	0.770
LCA	0.23	0.42	30	0.07	0.25	30	1.83	58	0.073
LCF	0.37	0.48	30	0.40	0.49	30	-0.26	58	0.795

*$p < .05$.

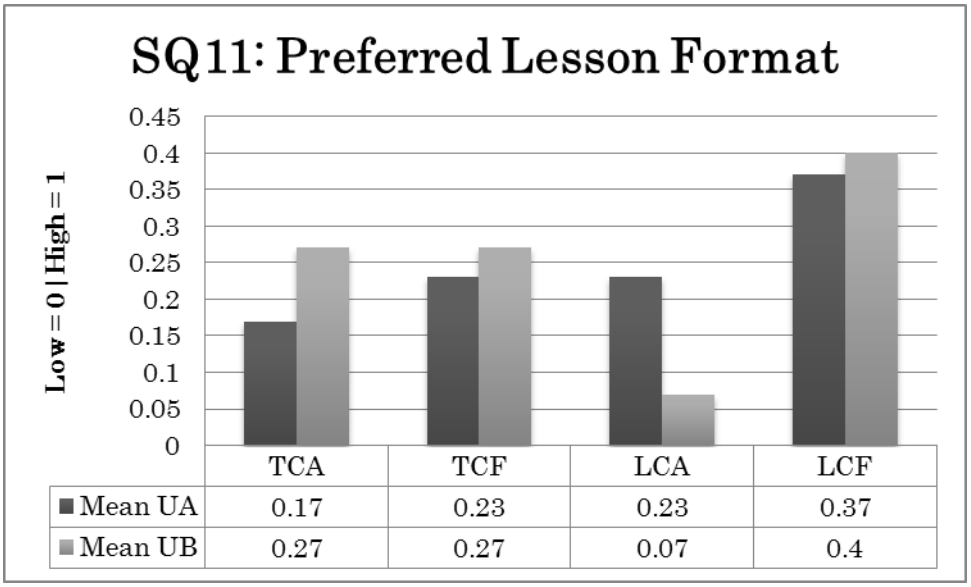


Figure 5.7 Comparative analyses of mean scores for learners' preferred format of lessons at University A and University B

It was found that the majority of senior year medical students surveyed at UA (M = 0.37, SD = 0.48) and UB (M = 0.40, SD = 0.49) preferred learner-centered lessons that emphasized fluency (LCF) such as group discussions over other lesson formats with no significant differences between the two sample populations (t = -0.26, p > .05). Similarly, a high proportion of senior year medical students at UA (M = 0.23, SD = 0.42) and UB (M = 0.27, SD = 0.44) indicated preference for teacher-centered lessons that emphasized fluency (TCF) such as brainstorming activities with no significant differences between the two sample populations (t = -0.29, p > .05). In contrast, a proportion of senior year medical students at UA (M = 0.17, SD = 0.37) and UB (M = 0.27, SD = 0.44) indicated preference for teacher-centered lessons that emphasized accuracy (TCA) such as pronunciation drills with no significant differences between the two sample populations (t = -0.93, p > .05). However, only a small proportion of senior year medical students at UA (M = 0.23, SD = 0.42) and UB (M = 0.07, SD = 0.25) preferred learner-centered lessons that emphasized accuracy (LCA) such as the practice of model dialogues with no significant differences between the two sample populations (t = 1.83, p > .05). Hence, results showed no significant differences between the two sample learner populations indicating certain similarities between senior year medical students at the two institutions. Overall, the results showed a preponderance of responses amongst senior year medical students at UA and UB indicating preference for learner-centered or teacher-centered lessons that promoted English language fluency such as group discussions or brainstorming activities.

5.9 Learners' Preferred Instructional Medium (SQ12)

Comparative analyses of mean, standard deviation, and *t*-test scores regarding preferred instructional medium for lessons by senior year medical students revealed the following results for item SQ12 (see Table 5.8).

Table 5.8 *Statistics for Learners' Preferred Medium of Instruction at University A and University B*

	UA			*UB*					
	Mean	*SD*	*N*	*Mean*	*SD*	*N*	*t*	*df*	*p*
Eng	0.60	0.49	30	0.13	0.34	30	4.21	58	0.000*
Eng/Jpn	0.10	0.30	30	0.50	0.50	30	-3.69	58	0.000*
Jpn	0.10	0.30	30	0.10	0.30	30	0	58	1.000
Jpn/Eng	0.20	0.40	30	0.27	0.44	30	-0.60	58	0.549

*$p < .05$.

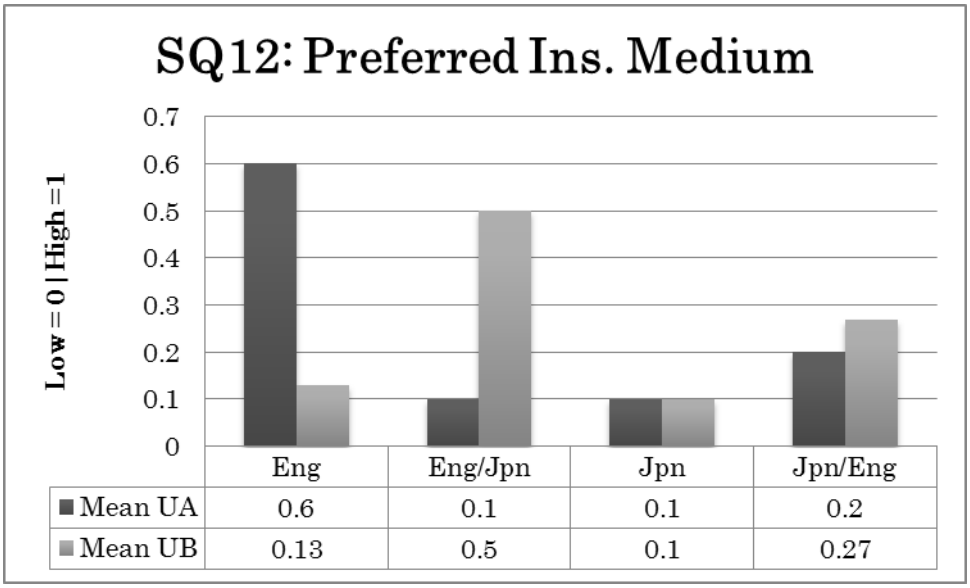


Figure 5.8 Comparative analyses of mean scores for learners' preferred medium of instruction at University A and University B

It was found that a distinct proportion of senior year medical students surveyed at UA (M = 0.60, SD = 0.49) and UB (M = 0.13, SD = 0.34) preferred that lessons be conducted using English only with significant differences between the two sample populations ($t = 4.21$, $p < .05$). In contrast, an opposite proportion of senior year medical students surveyed at UA (M = 0.10, SD = 0.30) and UB (M = 0.50, SD = 0.50) preferred that lessons be conducted using English with all medical terminology translated into Japanese with significant differences between the two sample populations ($t = -3.69$, $p < .05$). Moreover, at least one fifth of senior year medical students at UA (M = 0.20, SD = 0.40) and one quarter of senior year medical students at UB (M = 0.27, SD = 0.44) preferred that lessons be conducted in Japanese with all medical terminology translated into English with no significant differences between the two sample populations ($t = -0.60$, $p > .05$). However, only a minor proportion of senior year medical students surveyed at UA (M = 0.10, SD = 0.30) and UB (M = 0.10, SD = 0.30) preferred lessons be conducted using Japanese only with no significant differences between the two sample populations ($t = 0.00$, $p > .05$). Hence, results showed significant differences between the two sample learner populations amongst students preferring instruction using English only, or English with medical terminology translated in Japanese indicating certain dissimilarities between senior year medical students at the two institutions. In contrast, no significant differences

between the two sample learner populations were evident amongst responses for the remaining two choices indicating certain similarities for a small proportion of senior year medical students at the two institutions. Overall, the results showed a distinct division of responses with senior year medical students at UA indicating preference for lessons conducted using English only, and senior year medical students at UB indicating preference for lessons conducted in English with medical terminology translated into Japanese.

5.10 Learners' Preferred Learning Format (SQ13)

Comparative analyses of mean, standard deviation, and *t*-test scores regarding preferred learning format for lessons by senior year medical students revealed the following results for item SQ13 (see Table 5.9).

Table 5.9 *Statistics for Learners' Preferred Learning Format at University A and University B*

	UA			*UB*					
	Mean	*SD*	*N*	*Mean*	*SD*	*N*	*t*	*df*	*p*
Alone	0.47	0.50	30	0.43	0.50	30	0.26	58	0.799
Group	0.53	0.50	30	0.57	0.50	30	-0.26	58	0.799

*$p < .05$.

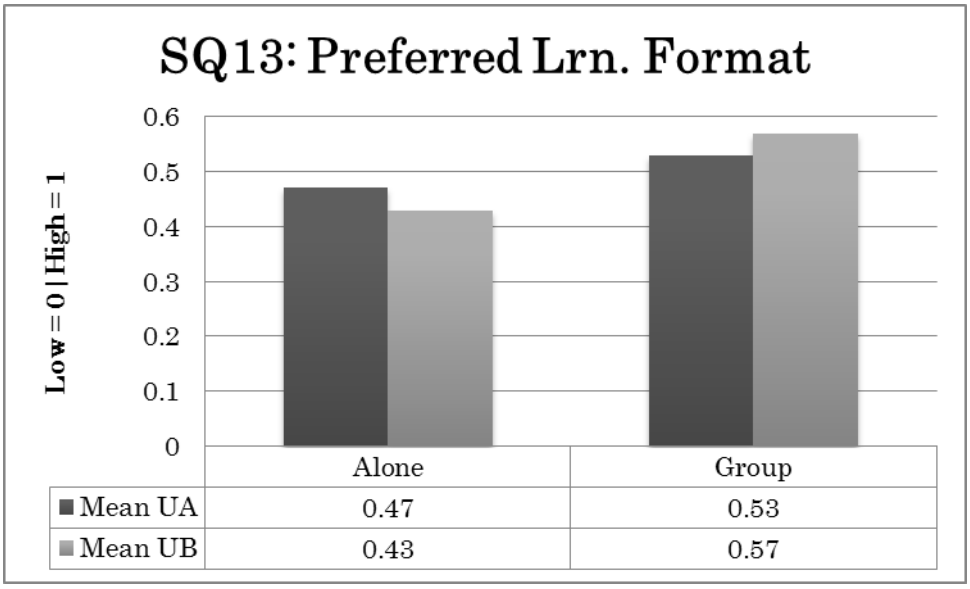


Figure 5.9 Comparative analyses of mean scores for learners' preferred learning format at University A and University B

It was found that an equivalent majority of senior year medical students surveyed at UA (M = 0.53, SD = 0.50) and UB (M = 0.57, SD = 0.50) preferred that lessons be conducted using group learning formats with no significant differences between the two sample populations (t = -0.26, p > .05). Equally, a similar proportion of students at UA (M = 0.47, SD = 0.50) and UB (M = 0.43, SD = 0.50) indicated that they preferred lessons to be conducted under individual learning formats with no significant differences between the two sample populations (t = 0.26, p > .05). Hence, results showed no significant differences between the two sample learner populations indicating certain similarities amongst senior year medical students at the two institutions. Overall, the results showed an equal proportion of responses amongst senior year medical students at UA and UB indicating preference for lessons conducted under group learning and individual learning

formats.

5.11 Learners' Preferred Amount of A-V Tasks (SQ14)

Comparative analyses of mean, standard deviation, and *t*-test scores regarding preferred amount (%) of audio-visual (A-V) activities or tasks within lessons by senior year medical students revealed the following results for item SQ14 (see Table 5.10).

Table 5.10 *Statistics for Learners' Preferred Amount of Audio-Visual Tasks at University A and University B*

	UA			*UB*					
	Mean	*SD*	*N*	*Mean*	*SD*	*N*	*t*	*df*	*p*
0%	0	0	30	0	0	30	n/a	58	n/a
25%	0.40	0.49	30	0.47	0.50	30	-0.51	58	0.610
50%	0.50	0.50	30	0.43	0.50	30	0.51	58	0.612
75%	0.07	0.25	30	0.10	0.30	30	-0.46	58	0.647
100%	0.03	0.18	30	0	0	30	1.00	58	0.321

*$p < .05$.

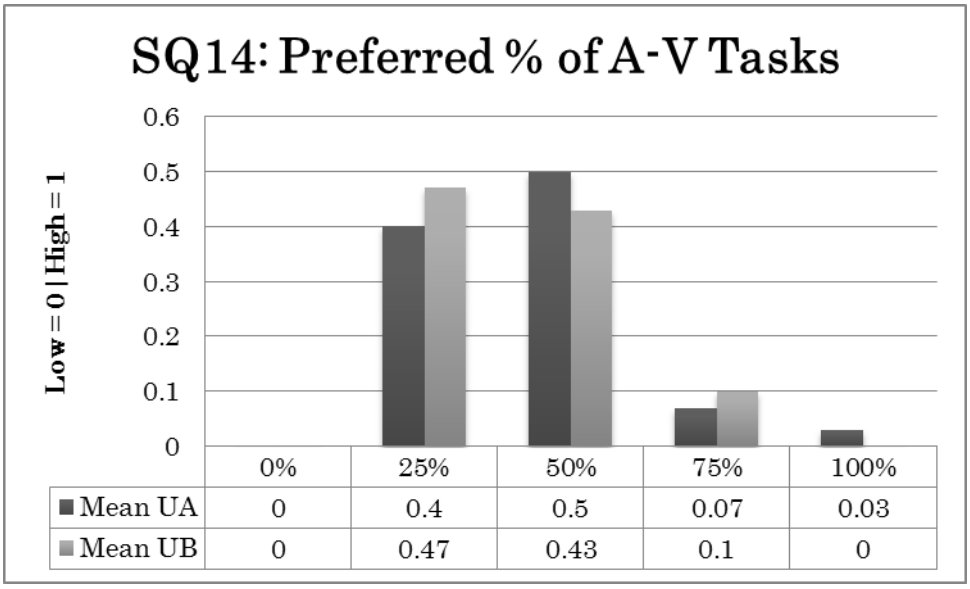


Figure 5.10 Comparative analyses of mean scores for learners' preferred amount of audio-visual tasks at University A and University B

It was found that a higher proportion of senior year medical students surveyed at UA (M = 0.50, SD = 0.50) and UB (M = 0.43, SD = 0.50) indicated preference for about one-half of the lesson to incorporate some form of audio-visual activity or task (e.g. animations, internet, media, softwares, videos, etc.) with no significant differences between the two sample populations ($t = 0.51$, $p > .05$). A slightly lower proportion of senior year medical students at UA (M = 0.40, SD = 0.49) and UB (M = 0.47, SD = 0.50) indicated preference for about one-quarter of the lesson to incorporate some form of audio-visual activity or task with no significant differences between the two sample populations ($t = -0.51$, $p > .05$). In contrast, only a small proportion of senior year medical students at UA (M = 0.07, SD = 0.25) and UB (M = 0.10, SD = 0.30) indicated preference for about three-quarters of the lesson to incorporate some form of audio-visual activity or task with

no significant differences between the two sample populations (t = -0.49, p > .05). Furthermore, only a limited number of senior year medical students at UA (M = 0.03, SD = 0.18) and UB (M = 0.00, SD = 0.00) showed preference for the entire the lesson to consist of audio-visual activities or tasks with no significant differences between the two sample populations (t = 1.00, p > .05). No responses were recorded amongst senior year medical students at UA or UB for lessons containing no audio-visual activities or tasks. Hence, results showed no significant differences between the two sample learner populations indicating certain similarities between senior year medical students at the two institutions. Overall, the results showed a higher number of responses amongst senior year medical students at UA indicating preference for one-half of the lesson to incorporate some form of audio-visual activity or task. Conversely, the results showed a higher number of responses amongst senior year medical students at UB indicating preference for one-quarter of the lesson to incorporate some form of audio-visual activity or task.

5.12 Learners' Priority Levels on EMP Objectives (SQ15)

Comparative analyses of mean, standard deviation, and *t*-test scores by Q-sort regarding priority levels placed on EMP learner objectives by senior year medical students revealed the following results for item SQ15 (see Table 5.11).

Table 5.11 *Statistics of Learners' Priority Levels Placed on EMP Objectives by Q-Sort at University A and University B*

	UA			*UB*					
	Mean	*SD*	*N*	*Mean*	*SD*	*N*	*t*	*df*	*p*
DPC	4.90	2.90	30	3.67	2.29	30	1.80	58	0.077
PtN	6.60	2.09	30	6.17	2.13	30	0.78	58	0.438
OP	5.30	2.10	30	5.57	1.98	30	-0.50	58	0.621
RSJ	2.77	2.45	30	3.43	2.72	30	-0.98	58	0.330
WSA	3.87	2.12	30	5.00	1.97	30	-2.11	58	0.039*
UCL	5.93	2.10	30	6.37	2.77	30	-0.67	58	0.505
UMT	3.63	2.20	30	3.53	2.09	30	0.18	58	0.860
SA	5.43	2.11	30	5.47	2.46	30	-0.06	58	0.956
WA	6.57	2.08	30	5.80	2.48	30	1.28	58	0.207

*$p < .05$.

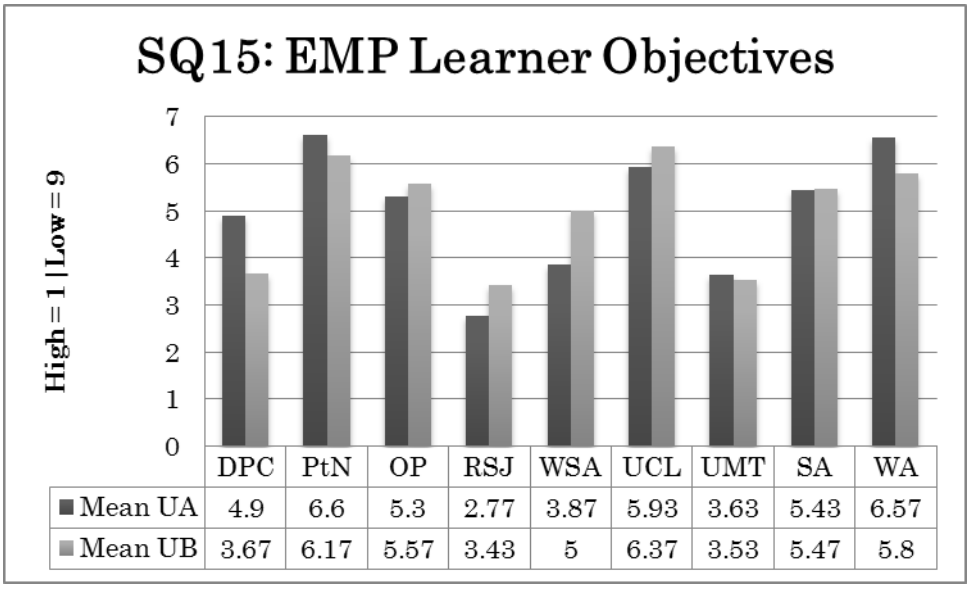


Figure 5.11 Comparative analyses of mean scores of learners' priority levels placed on EMP objectives by Q-Sort at University A and University B

It was found that being able to read scientific journals (RSJ) in English was ranked as the most important learner goal for the majority of senior year medical students at UA (M = 2.77, SD = 2.45) and UB (M = 3.43, SD = 2.72) with no significant differences between the two sample populations (t = -0.98, p > .05). Next, being able to understand medical terms (UMT) in English was ranked as the second most important learner goal for the majority of senior year medical students at UA (M = 3.63, SD = 2.20) and UB (M = 3.53, SD = 2.09) with no significant differences between the two sample populations (t = 0.18, p > .05). However, being able to write scientific articles (WSA) in English was ranked as the third most important learner goal at UA (M = 3.87, SD = 2.12) and the fourth most important learner goal at UB (M = 5.00, SD = 1.97) with significant differences between the two sample populations (t = -2.11, p < .05). In contrast, being able to orally

communicate with patients (DPC) in English was ranked as the fourth most important learner goal at UA (M = 4.90, SD = 2.90) and the third most important learner goal at UB (M = 3.67, SD = 2.29) with no significant differences between the two sample populations (t = 1.80, p > .05). Furthermore, being able to orally present (OP) research findings in English was ranked as the fifth most important learner goal at UA (M = 5.30, SD = 2.10) and the sixth most important learner goal at UB (M = 5.57, SD = 1.98) with no significant differences between the two sample populations (t = -0.50, p > .05). Moreover, being able to study abroad (SA) in an English-speaking country was ranked as the sixth most important skill at UA (M = 5.43, SD = 2.11) and fifth most important learner goal at UB (M = 5.47, SD = 2.46) with no significant differences between the two sample populations (t = -0.06, p > .05). However, not much importance was placed on being able to work abroad (WA) in an English-speaking country at UA (M = 6.57, SD = 2.08) and UB (M = 5.80, SD = 2.48) with no significant differences between the two sample populations (t = 1.28, p > .05). Similarly, being able to understand class lectures (UCL) in English ranked equally low at UA (M = 5.93, SD = 2.10) and UB (M = 6.37, SD = 2.77) with no significant differences between the two sample populations (t = -0.67, p > .05). Furthermore, being able to take patient notes (PtN) in English was ranked as the least important learner goal at UA (M = 6.60, SD = 2.09) and UB (M = 6.17, SD = 2.13) with no significant differences between the two sample populations (t = 0.78, p > .05). Hence, results showed significant differences between the two sample learner populations amongst

students prioritizing being able to write scientific articles in English indicating a clear difference between senior year medical students at the two institutions. In contrast, no significant differences between the two sample learner populations were evident amongst responses for the other EMP learner goals indicating certain similarities between senior year medical students at the two institutions. Overall, the results showed that the following EMP learner goals were ranked by order of importance by the majority of senior year medical students surveyed at UA and UB: RSJ, UMT, WSA, DPC, OP, SA, WA, UCL, and PtN.

5.13 Learners' Priority Levels on Learning Tasks (SQ16)

Comparative analyses of mean, standard deviation, and *t*-test scores by Q-sort regarding priority levels placed on classroom learning tasks by senior year medical students revealed the following results for item SQ16 (see Table 5.12).

Table 5.12 *Statistics of Learners' Priority Levels Placed on Learning Tasks by Q-Sort at University A and University B*

	UA			*UB*					
	Mean	*SD*	*N*	*Mean*	*SD*	*N*	*T*	*df*	*p*
LLT	2.23	1.28	30	2.30	1.59	30	-0.18	58	0.861
CLT	3.07	1.39	30	3.13	1.23	30	-0.19	58	0.847
ILT	2.67	1.45	30	2.97	1.58	30	1.90	58	0.062
ALT	3.37	1.54	30	2.67	1.25	30	-0.33	58	0.740
ELT	4.43	1.23	30	4.63	1.14	30	-0.64	58	0.523
HLT	5.23	1.26	30	5.33	1.01	30	-0.75	58	0.454

*$p < .05$.

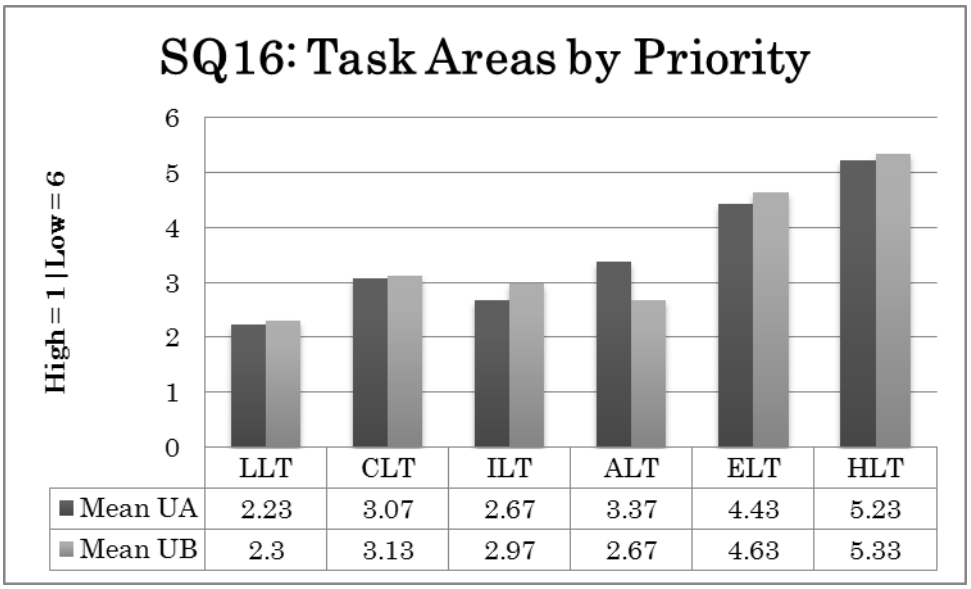


Figure 5.12 Comparative analyses of mean scores of learners' priority levels placed on learning tasks by Q-Sort at University A and University B

It was found that language learning tasks (LLT) for improving English language skills was ranked as most important by the majority of senior year medical students surveyed at UA (M = 2.23, SD = 1.28) and UB (M = 2.30, SD = 1.59) with no significant differences between the two sample populations (t = -0.18, p > .05). Next, interactive learning tasks (ILT) for improving English communication skills was ranked as second most important by the majority of senior year medical students at UA (M = 2.67, SD = 1.45) and UB (M = 2.97, SD = 1.58) with no significant differences between the two sample populations (t = 1.90, p > .05). Furthermore, content learning tasks (CLT) for improving medical English skills was ranked as third most important at UA (M = 3.07, SD = 1.39) and fourth most important at UB (M = 3.13, SD = 1.23) with no significant differences between the two sample populations (t = -0.19, p > .05). Conversely, affective learning tasks (ALT) for improving self-motivation was ranked as fourth most important at UA (M = 3.37, SD = 1.54) and third most important at UB (M = 2.67, SD = 1.25) with no significant differences between the two sample populations (t = -0.33, p > .05). However, error-based learning tasks (ELT) for improving self-awareness of English errors was only ranked fifth most important at UA (M = 4.43, SD = 1.23) and UB (M = 4.63, SD = 1.14) with no significant differences between the two sample populations (t = -0.64, p > .05). Furthermore, choice-based learning tasks (HLT) for improving self-dependency was ranked as least important at UA (M = 5.23, SD = 1.26) and UB (M = 5.33, SD = 1.01) with no significant differences between the two sample populations (t = -0.75, p > .05). Hence,

results showed no significant differences between the two sample learner populations indicating certain similarities between senior year medical students at the two institutions. Overall, the results showed that the following learning tasks were ranked by order of importance by the majority of senior year medical students surveyed at UA and UB: LLT, ILT, CLT, ALT, ELT, and HLT.

5.14 Learners' Priority Levels on English Skills (SQ17)

Comparative analyses of mean, standard deviation, and *t*-test scores by Q-sort regarding priority levels placed on English language skills by senior year medical students revealed the following results for item SQ17 (see Table 5.13).

Table 5.13 *Statistics of Learners' Priority Levels Placed on English Language Skills by Q-Sort at University A and University B*

	UA			*UB*					
	Mean	*SD*	*N*	*Mean*	*SD*	*N*	*t*	*df*	*p*
Speak	1.77	1.31	30	1.80	0.83	30	-0.12	58	0.908
Listen	2.27	1.18	30	2.03	0.80	30	0.88	58	0.381
Read	3.70	1.77	30	3.17	1.69	30	1.17	58	0.246
Write	4.03	1.20	30	4.50	1.43	30	-1.35	58	0.183
Pronu	4.83	1.32	30	5.07	1.15	30	-0.72	58	0.476
Vocab	5.10	1.37	30	5.23	1.52	30	-0.35	58	0.727
Gram	6.27	1.21	30	6.20	0.98	30	0.23	58	0.818

*$p < .05$.

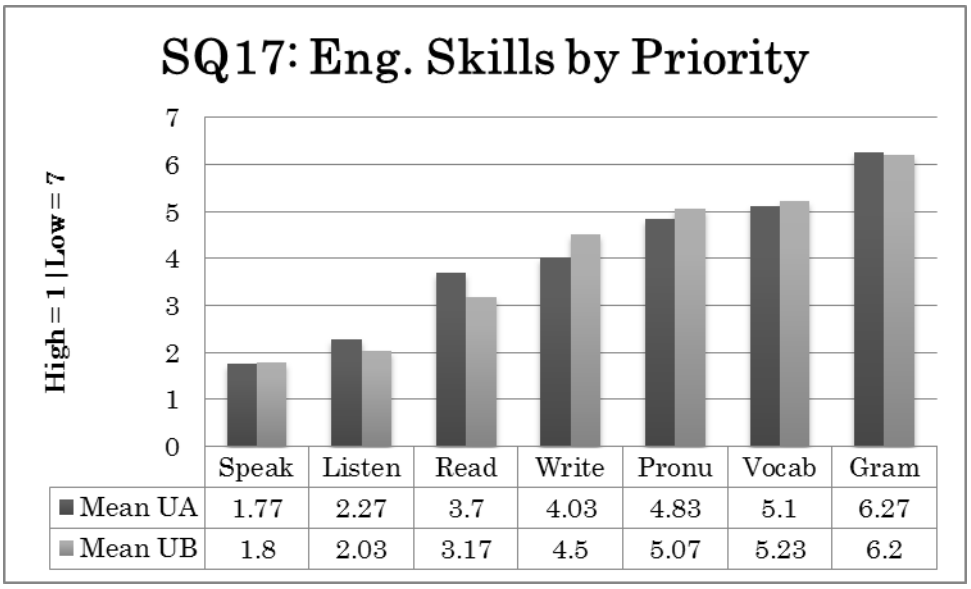


Figure 5.13 Comparative analyses of mean scores of learners' priority levels placed on

English language skills by Q-Sort at University A and University B

It was found that improving speaking skills was ranked as most important by the majority of students surveyed at UA (M = 1.77, SD = 1.31) and UB (M = 1.80, SD = 0.83) with no significant differences between the two sample populations (t = -0.12, p > .05). Next, improving listening skills was ranked as second most important by the majority of students surveyed at UA (M = 2.27, SD = 1.18) and UB (M = 2.03, SD = 0.80) with no significant differences between the two sample populations (t = 0.88, p > .05). Furthermore, improving reading skills was ranked as third most important by the majority of students surveyed at UA (M = 3.70, SD = 1.77) and UB (M = 3.17, SD = 1.69) with no significant differences between the two sample populations (t = 1.17, p > .05). Moreover, improving writing skills was ranked as fourth most important by the majority of students surveyed at UA (M = 4.03, SD = 1.20) and UB (M = 4.50, SD = 1.43) with no significant differences between the two sample populations (t = -1.35, p > .05). In contrast, improving pronunciation skills was only ranked as fifth most important by the majority of students surveyed at UA (M = 4.83, SD = 1.32) and UB (M = 5.07, SD = 1.15) with no significant differences between the two sample populations (t = -0.72, p > .05). Moreover, improving vocabulary skills was only ranked as sixth most important by the majority of students surveyed at UA (M = 5.10, SD = 1.37) and UB (M = 5.23, SD = 1.52) with no significant differences between the two sample populations (t = -0.35, p > .05). Furthermore, least priority was placed on improving grammar skills by the majority of students surveyed at

UA (M = 6.27, SD = 1.21) and UB (M = 6.20, SD = 0.98) with no significant differences between the two sample populations ($t = 0.23$, $p > .05$). Hence, results showed no significant differences between the two sample learner populations indicating certain similarities between senior year medical students at the two institutions. Overall, the results showed that the following English language skills were ranked by order of importance by the majority of senior year medical students surveyed at UA and UB: speaking, listening, reading, writing, pronunciation, vocabulary, and grammar.

5.15 Learners' Priority Levels on EMP Skills (SQ18)

Comparative analyses of mean, standard deviation, and *t*-test scores by Q-sort regarding priority levels placed on productive EMP skills by senior year medical students revealed the following results for item SQ18 (see Table 5.14).

Table 5.14 *Statistics of Learners' Priority Levels Placed on EMP Skills by Q-Sort at University A and University B*

	UA			*UB*					
	Mean	*SD*	*N*	*Mean*	*SD*	*N*	*t*	*df*	*p*
MOC	1.73	0.96	30	1.73	1.00	30	0.00	58	1.00
MT	2.43	0.92	30	2.43	1.09	30	0.00	58	1.00
SW	2.47	0.96	30	3.03	1.05	30	-2.15	58	0.036*
SCS	3.37	0.98	30	2.80	0.87	30	2.32	58	0.024*

*$p < .05$.

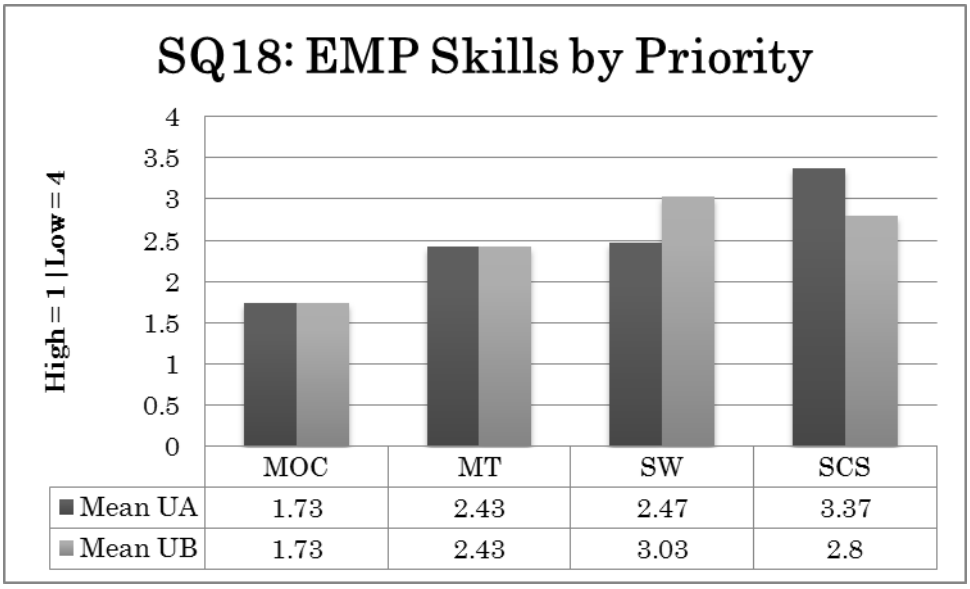


Figure 5.14 Comparative analyses of mean scores of learners' priority levels placed on EMP skills by Q-Sort at University A and University B

It was found that improving medical oral communication (MOC) skills was ranked as most important by the majority of students surveyed at UA (M = 1.73, SD = 0.96) and UB (M = 1.73, SD = 1.00) with no significant differences between the two sample populations ($t = 0.00$, $p > .05$). Next, improving medical terminology (MT) skills was ranked as second most important by the majority of senior year medical students surveyed at UA (M = 2.43, SD = 0.92) and UB (M = 2.43, SD = 1.09) with no significant differences between the two sample populations ($t = 0.00$, $p > .05$). In contrast, improving scientific writing (SW) skills was ranked as third most important at UA (M = 2.47, SD = 0.96) and fourth most important at UB (M = 3.03, SD = 1.05) with significant differences between the two sample populations ($t = -2.15$, $p < .05$). Conversely, improving case study problem-solving (SCS) skills was ranked as fourth most important at UA (M = 3.37, SD =

0.98), and third most important at UB (M = 2.80, SD = 0.87) with significant differences between the two sample populations ($t = 2.32$, $p < .05$). Hence, results showed significant differences between the two sample learner populations amongst students prioritizing scientific writing skills at UA and case study problem-solving skills at UB indicating clear differences between senior year medical students at the two institutions. In contrast, no significant differences between the two sample learner populations were evident amongst responses for the other two EMP skills indicating certain similarities between senior year medical students at the two institutions. Overall, the results showed that the following EMP skills were ranked by order of importance by the majority of senior year medical students surveyed at UA and UB: MOC, MT, SW, and SCS.

Chapter 6

Discussion

6.1 Overview of Chapter 6

This chapter discusses the results of the sample survey administered to senior year medical students at a national university affiliated medical school (UA) and private university affiliated medical school (UB). Results from the sample survey are discussed per item section through a combination of qual data in the form of field notes taken during on-site observations of EMP classes at UA and UB, and previous international research findings to allow for comparison between multiple data sets. Where applicable, results were linked to previous research findings by Chia et al. (1999) and Hwang and Lin (2010) through approximate percentage values in order to provide a direct means of comparison between Japanese and Taiwanese senior year medical students. Sections 6.2 to 6.15 provide a comparative discussion of QUAN data in context of qual data collected in the form of field notes, and findings from previous international research studies in the field.

6.2 Discussion of Learners' Experiences (SQ1 to SQ5)

For item SQ1, significant differences between responses at UA (45.7%) and UB (69.0%) regarding the degree of satisfaction amongst senior year medical students with respect to the adequacy of explanations provided by the teacher for completing classroom tasks can be supported through the following field notes:

Observation 1 (October 9 Tue, 2012, UB, Class B1, Level M3)

Teacher explains medical interview activity in Japanese to students having difficulty understanding instructions (Lesson Phase <90min, Teacher Notes 1).

Observation 5 (November 14 Wed, UA, Class A2, Level M1)

Teacher explains main requirements for preparing a written summary in English: Author, title, accuracy, brevity, and clarity (Lesson Phase <60min, Teacher Notes 1).

Observation 6 (November 21 Wed, UA, Class A2, Level M1)

Teacher goes over instructions for class again in English as there was some confusion last week. (Lesson Phase 0-30min, Teacher Notes 1).

As can be seen, the field notes show that teachers at UB occasionally had to translate instructions (from English to Japanese) during the first week of classes to students with lower English abilities. In contrast, teachers at UA only clarified or repeated instructions in English, irrespective of students' English abilities. This suggests that from the students' perspective (and particularly those with lower English abilities); clear understanding of instructions takes precedence over receiving instructions in the target language. Another factor for this discrepancy can be ascribed in part to the implementation of a standardized EMP curriculum at UB, where teachers (including the researcher) were briefed on instructional procedures and tasks prior to each lesson. Hence, the students (and

researcher) received the same set of instructions and tasks from the teacher irrespective of individual teaching differences. In contrast, there was no standardized EMP curriculum or pre-class meetings at UA, making it more difficult for the researcher to monitor and understand instructional flow. Based on these findings, it is postulated that this instructional washback effect also impedes students' task performance to a significant degree. This prompts the need for the setting out of clear objectives for students at the start of each lesson.

For item SQ2, significant differences between responses at UA (76.7%) and UB (52.3%) regarding the degree of importance placed by senior year medical students on the English language for their medical studies can be partly explained through field notes which show that there were more opportunities for overseas study at UA than UB:

> Observation 8 (December 11 Tue, UA, Class A1, Level M1)
>
> *Teacher discusses overseas clerkship program listing a number of institutions offering scholarships to UA students including: (1) Cleveland Clinic; (2) Harvard Medical School; (3) Johns Hopkins University School of Medicine; (4) King's College London School of Medicine; (5) Ludwig Maximillians University Munich Medical Center; (6) Mayo Clinic; (7) Oregon Health & Science University School of Medicine; (8) Tulane University School of Medicine; (9) University of Gothenburg Institute of Medicine; (10) University of Hawaii John A. Burns School of*

Medicine; (11) University of Michigan Medical School; (12) University of Pennsylvania School of Medicine (Lesson Phase 0-30min, Teacher Notes 1).

Observation 3 (May 15 Tue, UB, Class B1, Level M4)

Teacher announces opportunity for overseas study at Stanford University through the VIA Summer Medical Exchange & Discovery (MED) Program (Lesson Phase <90min, Teacher Notes 4).

As can be seen, the field notes illustrate that there was more emphasis on overseas clinical training and research at UA (n = 12) than at UB (n = 1) for AY 2012 to 2013. This seems to suggest that there is a link between the degree of importance placed by medical students on the English language, and the amount of emphasis placed by the institution on overseas clinical training and medical research. In addition, it should also be pointed out that research findings from Chia et al. (1999) and Hwang and Lin (2010) also demonstrated wide differences between responses in that 55.6% and 92.6% of senior year medical students in Taiwan perceived the English language as being important for their medical studies. Therefore, further research is needed in order to determine the reasons for these perceptual differences.

For item SQ3, the amount of English language usage by senior year medical students during their medical studies was perceived to be relatively low for both UA (47.7%) and UB (25.7%). Significant differences between responses obtained at UA and

UB seems to be an indication that opportunities for using English in other courses was generally limited due to the majority of medical courses being conducted in Japanese (Kozu, 2006). Another reason for this difference can be ascribed to the greater number of visiting international physicians offering open seminars in English at UA than at UB. For example, an international symposium (Kitamura, 2013) held at UA on the 26th of October, 2013, hosted five international speakers out of the six invited speakers including: (1) Professor Clarence D. Kreiter of the *Department of Family Medicine and Office of Consultation and Research in Medical Education, University of Iowa College of Medicine*; (2) Research Fellow Dr. Yuko Takeda of the *Division of General Medicine and Primary Care, Beth Israel Deaconess Medical Center, Harvard Medical School*; (3) Professor Peter McCrorie of *St George's Hospital Medical School, University of London*; (4) Dr. Chi Wan Lai of the *Taiwan Medical Accreditation Council*, and (5) Interim Physician in Chief Dr. Joyce Pickering of the *Department of Medicine, McGill University Health Center*. In contrast, a symposium (Odawara, 2012) held at UB on the 28th of January, 2012, hosted no international speakers out of the five invited speakers. Hence, opportunities for using English both inside and outside of the classroom were more restricted in the case of UB.

For item SQ4, the amount of English language practice received by senior medical students during classes at the university's medical school was perceived to be very low for both UA (29.0%) and UB (37.7%). As the amount of classroom instructional hours held in English at the medical school was mainly dependent upon the number of EMP classes

being held, it can be stated that the limited number of EMP classes for senior year medical students had a direct and negative impact upon the amount of English language practice received by students at either institution (see Table 6.1).

Table 6.1 *EMP Hours per Senior Year Medical Student at University A and University B for AY2012-2013*

UA (Medical English I & II)	*UB (EMP III & IV)*
M1: 8 classes, 120min each	M3: 8 classes*, 90min each
M2: 12 classes, 120min each	M4: 17 classes, 90min each
Total: 40 hours per student	Total: 37.5 hours per student

*: excluding orientation session

This seems to suggest that more EMP classes in addition to regular English language classes are needed if the amount of English language practice for senior year medical students is to be increased at either institution. As Rao and Rao (2007) highlighted, the low priority given to non-medical courses is symptomatic of most medical schools in Japan and is one of the main factors contributing to the poor English language abilities of medical students. Matsui et al. (2004) particularly warned that the poor English language skills of Japanese health care professionals have a negative impact on the learning and practice of evidence-based medicine in Japan. Therefore, more emphasis needs to be placed on the scaffolding of English language skills under a comprehensive ESP program at medical schools that encompasses EEP, EAP, EST, and EMP courses.

For item SQ5, the level of (medical English) tasks were relatively consistent with students' English language levels for both institutions, with percentage values being slightly higher at UA (59.0%) than in UB (57.7%). One reason for this slight difference can be accounted through field notes taken during on-site observations:

> Observation 4 (May 15 Tue, UA, Class A1, Level M2)
>
> *Students watch video on gender dysphoria and take open notes in preparation for discussion* (Lesson Phase <60min, Learner Notes 1).
>
> Observation 4 (May 11 Fri, UA, Class A3, Level M2)
>
> *Students watch video on posterior vitreous detachment and fill in the blanks of the worksheet* (Lesson Phase <60min, Learner Notes 3).

As can be seen, variability of tasks depending on learner levels by teachers at UA possibly resulted in slightly higher learner-task compatibility levels. Conversely, the usage of institutionalized (i.e. standardized) tasks for all learner levels by teachers at UB possibly resulted in slightly lower learner-task compatibility levels. This seems to suggest that tasks specifically adjusted to meet different learner levels would result in significantly higher learner-task compatibility levels, thereby improving overall student learning. Based on these findings, it is postulated that extensive usage of learner adjusted tasks would help improve language acquisition in the short term. This in turn would compensate to some extent for the low number of EMP classes currently provided at either institution.

6.3 Discussion of Learners' Self-Assessed English Language Proficiency Levels (SQ6)

For item SQ6, speaking skills were identified as being the most problematic English language skill amongst senior year medical students surveyed at UA (65.7%) and UB (66.7%). This was closely followed by listening skills for a large proportion of respondents at UA (53.3%) and UB (62.3%). These results support similar research findings conducted in Taiwan which showed that about 62.0% of senior year medical students indicated problems with English speaking skills, and 46.3% of senior year medical students indicated problems with English listening skills (Hwang, 2011; Hwang & Lin, 2010). This seems to suggest that both Japanese and Taiwanese senior year medical students experience similar English language difficulties with respect to speaking and listening skills. Therefore, there is a need for more instructional emphasis to be placed on speaking and listening skills during English language education at medical schools in Japan and Taiwan. Other English language skills perceived to be problematic for a proportion of senior year medical students were: writing skills for UA (46.7%) and UB (56.7%), pronunciation skills for UA (51.0%) and UB (59.0%), and vocabulary skills at UA (52.3%) and UB (53.3%).

Conversely, only a small percentage of respondents at UA (32.3%) and UB (45.7%) viewed reading skills as being problematic. Significant differences between responses at UA and UB could be a result of increased opportunities for focused reading practice during EMP class hours at UA than at UB (see Appendix B and C). In addition,

students at UA were exposed to a broader range of medical reading materials during class hours including: narratives (e.g. *First Day*), manuals (e.g. *Guide for Wards Success*), and case studies (e.g. *74-year-old Woman with a Rash and Shortness of Breath*). In contrast, students at UB were only exposed to academic texts (e.g. *Tyrosine Kinase as a Target Molecule in Cancer Therapy*) during class hours. Similarly, significant differences between responses at UA (35.7%) and UB (52.3%) were also evident for self-assessed grammar skills. The difference can be explained in part through field notes taken during on site observations which showed that students at UA regularly received corrective feedback from their teacher concerning grammatical errors as in the following example:

> Observation 6 (November 21 Wed, UA, Class A2, Level M1)
>
> Writing Error: *I felt it* [i.e. the text] *difficult*.
>
> Teacher Correction: *I found it* [i.e. the text] *difficult* (Lesson Phase <60min, Teacher Notes 2).

The results also suggest that there was a correlative link between reading skills and grammar skills with senior year medical students perceiving grammar skills as being more difficult to acquire than reading skills. These results support similar research findings conducted in Taiwan which showed that only 19.8% of senior year medical students indicated problems with English reading skills (Hwang, 2011; Hwang & Lin, 2010) while as 20.8% of senior year medical students indicated problems with English grammar skills (Chia et al., 1999). The lower percentage values from Taiwan can be attributed in part to

the effects of pre-tertiary education at most Taiwanese schools that mainly emphasize reading and grammar skills during English language classes (Chia et al., 1999; Derwing, Schutz, & Yang, 1978; Tsao, Wei, & Fang, 2008). In contrast, the higher percentage values amongst Japanese senior year medical students could be attributed in part to the effect of decontextualized language teaching (Honna & Takeshita, 2005; Law, 1994) and grammar translation practices (Gorusch, 1998; Nishino, 2008; Oshita, 2013) during pre-tertiary education at Japanese schools. Overall, these findings seem to suggest the need for language to be scaffolded and taught in context through the target language in order to raise students' English language proficiency levels.

6.4 Discussion of Learners' Self-Assessed EMP Proficiency Levels (SQ7)

For item SQ7, scientific writing skills were identified as being the most problematic EMP skill amongst senior year medical students surveyed at UA (73.3%) and UB (82.3%). This was closely followed by case study problem-solving skills for a large proportion of respondents at UA (70.0%) and UB (82.3%). Significant differences between responses at UA and UB for the latter could be ascribed to instructional differences in terms of how the material was presented to students. Copies of handouts and repeated observations of how case studies were presented in class showed that students at UA were mainly taught to read and analyze case studies for cognitive comprehension purposes. In contrast, case studies at UB were mainly presented in the form of fill-in-the-blank tasks for verbal comprehension purposes. Nevertheless, the large proportion of respondents

experiencing difficulties with case study problem-solving skills and scientific writing skills seems to suggest that higher-order cognitive/linguistic skills tend to be difficult to acquire without adequate scaffolding of prior language skills. In this respect, medical oral communication skills were found to be equally problematic for a proportion of respondents at UA (71.0%) and UB (69.0%). Similarly, medical terminology skills were also found to be equally problematic amongst a proportion of respondents at UA (62.3%) and UB (63.3%). Perceptual difficulties amongst senior year medical students for all four productive EMP skills at UA and UB can be mainly ascribed to: (1) the absence of elective courses focusing on a specific EMP skill, and (2) the limited number of EMP classes being offered at both medical schools (see Table 6.1). This in turn had a negative effect on the organizational structure of EMP courses at either institution, with only general EMP courses (e.g. Medical English I, EMP I, etc.) being offered on a compulsory basis. Moreover, due to the limited number of EMP classes, teachers by default had to adopt a holistic instructional approach covering all three EMP skills (minus scientific writing) resulting in superficial transfer of specific skills. Yet, because medical terminology was taught in context (i.e. academic texts or case studies), transfer of knowledge between EMP skill areas was facilitated to a certain extent as in the following example:

> Observation 7 (June 8 Fri, UA, Class A3, Level M2)
>
> *Teacher has students work in pairs and gives each student a different news article from the British Medical Journal (BMJ) to scan and*

memorize the main points (Lesson Phase <120min, Teacher Notes 1).

Observation 7 (June 8 Fri, UA, Class A3, Level M2)

Student A summarizes main points of BMJ news article on "childhood obesity increases blood pressure in adolescence" from memory to Student B. Student B summarizes main points of BMJ news article on "dying remains a taboo subject for patients and GPs, finds survey" from memory to Student A (Lesson Phase <120min, Learner Notes 1-2).

Therefore, it was possible for some students to rate scientific writing skills even though it was not specifically taught in EMP classes at either institution. However, this less focused form of instruction resulted in a lower level of individual skill acquisition for all four productive EMP skills. This seems to suggest a need for dividing EMP classes according to knowledge transfer and skill acquisition factors, with medical terminology and medical oral communication taught in the first half, and scientific writing and problem-solving through case studies taught in the latter half of medical English education. Unfortunately, the lack of previously published international studies examining senior year medical students' self-assessed proficiency levels regarding productive EMP skills prevents any further comparisons from being made with other institutions. This suggests the need for further research to be conducted in this area at other medical schools both in Japan and overseas.

6.5 Discussion of Learners' English Study Hours Outside of Class (SQ8)

For item SQ8, the high percentage values obtained amongst respondents studying less than one hour of per week of English outside of class at UA (50.0%) and UB (86.7%) is another indication of the low priority afforded to non-medical courses within the undergraduate curriculum at most Japanese medical schools (Rao & Rao, 2007). Significant differences between responses at UA and UB seem to be a result of the inclusion of extracurricular English study sessions (e.g. ER evening, extra medical English, oral presentation training) being offered by one of the teachers observed at UA as can be evinced from the following field note:

> Observation 12 (September 12 Wed, UA, Class A2, Level M2)
>
> *ER evening, extra medical English, and oral presentation training are offered on an irregular basis to anyone who wants more English language practice* (Open notes).

Similarly, significant differences between responses for UA (16.7%) and UB (0.0%) amongst senior year medical students studying between three to six hours per week of English outside of class could be attributed in part to institutional emphasis on TOEFL® iBT examination scores needed for overseas clinical training and medical research scholarships at UA. The lack of any TOEFL® iBT preparatory courses for senior year medical students at UA meant that some students had to study a lot outside of class hours in order to achieve the necessary scores. Studies of Taiwanese medical students (Hwang;

2011; Hwang & Lin, 2010) have shown that institutional emphasis on achieving target TOEFL® iBT examination scores of 80 and above resulted in higher motivational levels amongst students and a willingness to undertake further English language studies. This seems to suggest the need for elective TOEFL® iBT preparation courses and regular extracurricular events held in English in order to raise students' English language abilities to international standards. Unfortunately, the lack of previously published international studies examining the amount of hours per week senior year medical students spend studying English outside of the classroom prevents further comparisons from being made with other institutions. Further research needs to be conducted in this area at other medical schools in order to determine the precise impact of external learning opportunities on English language proficiency levels of senior year medical students.

6.6 Discussion of Learners' Preferred Number of Years of English Education (SQ9)

For item SQ9, the higher percentage values obtained for two years of English language education at UA (36.7%) and UB (26.7%) indicates that most senior year medical students share the view that compulsory English language education should be focused in the first two years of study at medical schools. These results support similar research studies conducted at Taiwanese medical schools (Chia et al., 1999; Hwang, 2011; Hwang and Lin, 2010) which showed that most Taiwanese medical students regarded about one to two years of compulsory English language education as being sufficient. However, the large proportion of senior year medical students at UA (23.3%) and UB (20.0%)

advocating six years of English language education seems to suggest the need for additional elective English language courses to be offered throughout the six year undergraduate medical program at both national and private medical schools. As the number of general education courses at Japanese medical schools is restricted by the medical curricula (Kozu, 2006), it is suggested that these elective English language courses be scheduled in the evenings or during weekends. Significant differences between responses at UA (6.7%) and UB (26.7%) amongst respondents recommending zero years of English language education seems to suggest that the perceived value of English language courses for senior year medical students at UB was limited. Tsao (2011) suggested that one reason for this could be due to the perceptual inefficiency of English language programs at technical universities in imparting the necessary language skills needed by students majoring in specialist subjects. It is recommended that a large scale survey be conducted at UB to ascertain whether this is the case, and if so, where the problem lies exactly. It is postulated that this perception could be the cause of low motivation levels for English language learning amongst some senior year medical students at UB. Further research needs to be conducted at other private-funded medical schools to determine whether this perception is particular to students at the university under study or is a common perception amongst senior year medical students at private-funded universities in Japan.

6.7 Discussion of Learners' Preferred Number of Years of EMP Education (SQ10)

For item SQ10, the higher percentage values obtained for two years of medical English education at UA (30.0%) and UB (43.3%) indicates that most senior year medical students share the view that compulsory medical English education should be focused in the first two years of study at medical schools. These results support similar research studies conducted at Taiwanese medical schools (Chia et al., 1999; Hwang, 2011; Hwang and Lin, 2010) which showed that most Taiwanese medical students regarded about two years of medical English education as being sufficient. However, the large proportion of senior year medical students at UA (23.3%) advocating six years of medical English education seems to suggest the need for additional elective EMP courses to be offered throughout the six year undergraduate medical program at national medical schools. In contrast, the large proportion of senior year medical students at UB (23.3%) recommending four years of medical English education seems to suggest that elective EMP courses offered during the third and fourth years of pre-clinical education is sufficient for meeting the needs of students at private medical schools. Taking this a step further, it can be postulated that senior year medical students at national institutions perceive a need for more medical English instruction than their counterparts at private institutions. Considering that national medical schools on average place more emphasis on medical research than private medical schools, it is recommended that national medical schools provide a higher number of elective medical English courses to meet the needs of their

students.

6.8 Discussion of Learners' Preferred Lesson Orientation Format (SQ11)

For item SQ11, the higher percentage values obtained for learner-centered lessons that emphasized English language fluency at UA (36.7%) and UB (40.0%) indicates that most senior year medical students prefer activities that encourage open learning such as group discussions, research projects, or oral presentations. Similarly, the proportion of responses obtained for teacher-centered lessons that emphasized English language fluency at UA (23.3%) and UB (26.7%) seems to confirm that most senior year medical students prefer activities that focus on fluency rather than on accuracy. However, slight differences between responses for learner-centered lessons focusing on accuracy at UA (23.3%) and UB (6.7%) seems to suggest that senior year medical students at UA tend to place more importance on lessons that are learner-centered than their counterparts at UB. In contrast, an equal proportion of students at UB (26.7%) preferred teacher-centered lessons that emphasized accuracy or fluency. This seems to suggest that senior year medical students at private medical schools prefer a proportion of lessons to be teacher-centered as well. Research studies examining the effect of learner-centered lessons on first year medical students with low English skills in Iran have shown that a proportion of students perform poorly under such conditions (Kashani, Soheili, & Hatmi, 2006). This seems to suggest that a similar problem might exist with a proportion of senior year medical students at UB. The general implication suggests that while most senior year medical students at national

medical schools seem to prefer learner-centered lessons, a proportion of senior year medical students at private medical schools prefer a combination of teacher-centered and learner-centered lessons. It is postulated that senior year medical students at private medical schools require more guidance and support from the teacher during the lesson than their counterparts at national medical schools. Further comparative research needs to be conducted in this area at other institutions in order to determine if this is the case for senior year medical students at private-funded medical schools.

6.9 Discussion of Learners' Preferred Instructional Medium (SQ12)

For item SQ12, the percentage values obtained for lessons conducted using English only at UA (60.0%) and UB (13.3%) indicates that senior year medical students at UA showed more preference for learning through the target language. This result closely reflects research findings by Hwang and Lin (2010) which showed that instruction in English was favored by 64.1% of senior year medical students at a Taiwanese medical school. Conversely, the percentage values obtained for lessons conducted using English with medical terms translated in Japanese at UA (10.0%) and UB (50.0%) indicates that senior year medical students at UB showed more preference for learning under bilingual contexts. Significant differences between responses at UA and UB for the above choices seems to suggest that a proportion of respondents by default indicated preference for the instructional medium already used in classes. This is corroborated by field notes taken during on site observations which showed that while all observed lessons at UA were

conducted using English only; some of the observed lessons at UB were conducted using English with all medical terminology translated into Japanese:

> Observation 8 (December 11 Tue, UA, Class A1, Level M1)
>
> *Teacher shows CBS video on biological clock and explains meaning of medical phrase "window of fertility" in English* (Lesson Phase <90min, Teacher Notes 1-2).
>
> Observation 1 (October 9 Tue, UB, Class A1, Level M3)
>
> *Teacher explains medical terms like schizophrenia and pharmacotherapy which are difficult to understand in Japanese* (Lesson Phase <90min, Teacher Notes 1).

Furthermore, about one fifth to one quarter of respondents at UA (20.0%) and UB (26.7%) indicated preference for lessons conducted in Japanese with all medical terminology translated into English. This seems to suggest that there is a need to separate instructional mediums according to learner language levels and would explain findings by Chia et al. (1999) which showed that most faculty at a Taiwanese medical school conducted lessons in Chinese with medical terminology translated into English. It is postulated that it might be more conducive for ESL/EFL learning if a proportion of lessons were held in Japanese using medical English terminology for senior year medical students with lower English abilities. The general implication suggests that there is a need to adopt a more flexible approach with regards to ESP learning at medical schools by dividing

classes along three broad English ability levels (e.g. advanced, intermediate, and novice) and adjusting instructional mediums along similar lines. Hence, advanced classes would be ideally conducted using English only, while as intermediate classes would be held using English with Japanese medical terminology. Similarly, novice classes would be held in Japanese using English medical terminology. Further research is required to determine whether this more flexible approach towards ESP learning would help improve knowledge transfer levels, thereby facilitating language acquisition amongst students with lower English abilities.

6.10 Discussion of Learners' Preferred Learning Format (SQ13)

For item SQ13, the higher percentage values obtained for lessons conducted under group learning formats at UA (53.3%) and UB (56.7%) indicates that most senior year medical students showed more preference for cooperative learning formats. These results are also corroborated by research findings from Hwang and Lin (2010) which showed that group learning was favored by 51.3% of senior year medical students at a Taiwanese medical school. One reason for the slightly higher percentage of responses at UA and UB can be accounted through field notes taken during on site observations which showed that a high proportion of classroom activities were conducted under group learning formats:

> Observation 6 (June 1 Fri, UA, Class A3, Level M2)
>
> *Students role-play model dialogue in pairs by making additional changes to the dialogue* (Lesson Phase <60min, Learner Notes 2).

Observation 6 (June 1 Fri, UA, Class A3, Level M2)

Students work in groups of three and memorize their texts. Students then pass on the information orally to the next person (i.e. telephone activity) (Lesson Phase <90min, Learner Notes 1-2).

Observation 4 (January 22 Tue, UB, Class A1, Level M3)

Students discuss in groups of five the answers to the clinical concepts (Lesson Phase 0-30min, Learner Notes 1).

Observation 4 (January 22 Tue, UB, Class A1, Level M3)

Students discuss in groups of five questions for the clinician (Lesson Phase <90min, Learner Notes 1).

Therefore, it is probable that a proportion of respondents by default indicated preference for the learning format mainly used during class activities. However, the percentage values obtained for lessons conducted under individual learning formats at UA (46.7%) and UB (43.3%) indicates that a similar proportion of senior year medical students showed preference for individual learning formats. These results are also corroborated by research findings from Hwang and Lin (2010) which showed that individual learning was favored by 43.7% of senior year medical students at a Taiwanese medical school. This seems to suggest that the current emphasis on group learning activities per lesson observed at both UA and UB needs to be reconsidered if students' needs are to be considered. It is postulated that more balanced activities which incorporate a mixture of individual (40%)

and group (60%) learning tasks would cover a broader range of learning styles and be more conducive for overall student learning. The general implication suggests that both national and private medical schools need to ensure that: (1) a broader range of learning styles is catered for during class activities, and (2) lessons are structured to match the students' learning needs. It is postulated that this can be achieved through the rotation of different learning formats (i.e. individual, paired, group, whole class) in EMP classes using specifically designed lessons that allow for learning under several formats. Further research needs to be conducted in this area in order to precisely match instructional methodology with the learning style preferences of senior year medical students at the respective institutions.

6.11 Discussion of Learners' Preferred Amount of A-V Tasks (SQ14)

For item SQ14, the percentage values obtained for lessons consisting of fifty percent audio-visual tasks at UA (50.0%) and UB (43.3%) indicates that slightly more respondents at UA showed preference for lessons containing an equal amount of audio-visual and traditional based tasks. Conversely, the percentages values obtained for lessons consisting of twenty-five percent audio-visual tasks at UA (40.0%) and UB (46.7%) indicates that slightly more respondents at UB showed preference for lessons containing a higher amount of traditional based tasks than audio-visual tasks. Moreover, almost no responses were recorded at UA and UB for lessons containing all or no audio-visual tasks suggesting that most medical students prefer a certain amount of

audio-visual and traditional based tasks per lesson. Research findings from Hwang and Lin (2010) showed in more depth that Taiwanese medical students preferred learning through audio-visual tasks such as television/videos (86.2%) and the Internet (33.8%), followed by traditional tasks using pictures/posters (11.4%) and the whiteboard (7.6%). The above study seems to suggest that more emphasis needs to be placed on classroom tasks that make use of the television/video recordings during EMP lessons. It is postulated that increased usage of television/video recordings would facilitate understanding of key medical terms used by health care personnel working in medical care facilities and have a positive effect on student motivation levels. The general implication suggests that senior year medical students at national medical schools seem to show a slightly higher preference for audio-visual tasks than their counterparts at private medical schools. Further comparative research needs to be conducted in this area in order to precisely match instructional methodology with the audio-visual task preferences of senior year medical students at the respective institutions.

6.12 Discussion of Learners' Priority Levels on EMP Objectives (SQ15)

For SQ15, the priority levels placed on RSJ, UMT, WSA, OP, SA, WA, and PtN at both institutions seems to indicate that most senior year medical students placed more emphasis towards achieving immediate EMP academic goals than on achieving long-term EMP career goals. Furthermore, comparison of percentage values for RSJ at UA (69.2%) and UB (61.9%), UMT at UA (59.7%) and UB (60.8%), WSA at UA (57.0%) and UB

(44.4%), and OP at UA (41.1%) and UB (38.1%) seems to illustrate a tendency amongst senior year medical students at both institutions towards focusing on receptive EMP academic goals prior to productive EMP academic goals. These results support research findings in Taiwan which showed that 91.6% (Chia et al., 1999) and 41.1% (Hwang & Lin, 2010) of senior year medical students perceived RSJ as being important for medical studies. Similarly, only 27.2% of senior year medical students perceived OP as being important for medical studies (Hwang & Lin, 2010). However, the same study also showed that while 47.7% of senior year medical students perceived writing medical reports as being important, only 7.2% of senior year medical students perceived WSA as being important for medical studies (Hwang & Lin, 2010). One reason for this difference could simply be a result of less institutional emphasis on writing scientific articles in English at the specific institution under study. This view seems to be supported by additional data from Hwang and Lin (2010) which showed that while 58.7% of senior year medical students used English for writing medical reports, only 9.9% of senior year medical students used English for writing research papers. Therefore, significant differences between responses for WSA at UA and UB could have been due to differences in the amount of institutional priority placed on writing scientific articles in English.

Variability of responses was also encountered in previous studies examining the importance of UCL. Chia et al. (1999) study showed that 56.7% of senior year medical students perceived UCL as being important for medical studies. In contrast, findings by

Hwang and Lin (2010) revealed that only 9.3% of senior year medical students perceived UCL as being important for medical studies. However, comparison of percentage values for UCL at UA (34.1%) and UB (29.2%) suggests that only minor differences exist with regards to the amount of priority placed on UCL by senior year medical students. Moreover, comparison of percentage values for DPC at UA (45.6%) and UB (59.2%), and PtN at UA (26.7%) and UB (31.4%) seems to suggest that senior year medical students at UB placed more priority on acquiring skills needed for clinical purposes than their counterparts at UA. Additionally, comparison of percentage values for SA at UA (39.7%) and UB (39.2%), and WA at UA (27.0%) and UB (35.6%) seems to suggest that senior year medical students at both institutions place slightly more priority on overseas study than pursuing overseas careers. Unfortunately, it is not possible to derive further comparisons since DPC, PtN, SA, WA, and UMT were not specifically measured in the two previous studies. This suggests a need for further research to be conducted in this area at other medical institutions both in Japan and overseas.

Based on the findings from the study, it is possible to derive four specific implications for classroom instruction and learning: (1) the high amount of priority placed on RSJ and UMT by senior year medical students at both institutions suggests that primary emphasis needs to be placed on providing students with the skills needed to achieve competency in these areas, (2) the amount of priority placed on WSA and DPC by senior year medical students at both institutions suggests that secondary emphasis needs to be

placed on providing students with the skills needed to achieve competency in these areas, (3) the low amount of priority placed on WA and PtN by senior year medical students at both institutions suggests that instructional emphasis on foreign medical licensure (e.g. United States Medical Licensing Examination) needed for practicing medicine in other countries is unnecessary (Yuasa et al., 2012) provided that students have the opportunity to study abroad in English-speaking countries, and (4) the low amount of priority placed on UCL by senior year medical students at both institutions suggests that instructional emphasis on conducting lessons in English only is not so crucial provided that students have the opportunity to practice English language skills during classroom tasks. This lends credence to the proposal for adjusting instructional mediums based on students' English language levels as discussed in item SQ12. The general implication suggests that the majority of senior year medical students at national medical schools place priority on the acquisition of English language skills needed for research purposes (e.g. WSA), while as most senior year medical students at private medical schools place priority on the acquisition of English language skills needed for clinical purposes (e.g. DPC).

6.13 Discussion of Learners' Priority Levels on Learning Tasks (SQ16)

For SQ16, the priority levels placed on LLT, ILT, CLT, ALT, ELT, and HLT seems to indicate that most senior year medical students at UA and UB placed more emphasis on classroom tasks focused towards building language learning skills than open learning skills. Furthermore, comparison of percentage values for LLT at UA (62.8%) and UB (61.7%),

CLT at UA (48.8%) and UB (47.8%), and HLT at UA (12.8%) and UB (11.2%) seems to suggest that senior year medical students at both institutions place more priority on tasks focusing on language learning than tasks based on content or learner choice. These results support similar research findings by Hwang and Lin (2010) which showed that most junior and senior year medical students preferred language learning tasks during classes such as listening (57.2%) or reading (52.0%) than either open learning tasks such as finding information by themselves (36.6%) or rote learning tasks such as memorizing (19.2%) or copying from the board (15.4%). In addition, only 47.1% of senior year medical students indicated that materials in English language courses should be based on medical content. Furthermore, comparison of percentage values for ILT at UA (55.5%) and UB (50.5%), and ELT at UA (26.6%) and UB (22.8%) seems to suggest that senior year medical students at both institutions would respond better to tasks promoting interactive learning than tasks based on error correction. However, comparison of percentage values for ALT at UA (43.8%) and UB (55.5%) seems to suggest that tasks incorporating affective content are more suitable for senior year medical students at UB than at UA. Unfortunately, the lack sufficient studies examining priority levels placed on classroom learning tasks by senior year medical students prevents further comparisons from being made with other institutions. This suggests a need for further research to be conducted in this area at other medical institutions both in Japan and overseas.

Based on the findings from the study, it is possible to derive three specific implications for classroom instruction and learning: (1) the high amount of priority placed on LLT and ILT by senior year medical students at both institutions suggests that primary emphasis needs to be placed on language learning and interactive learning tasks in the classroom, (2) the amount of priority placed on CLT and ALT by senior year medical students at both institutions suggests that secondary emphasis needs to be placed on content learning and affective learning tasks in the classroom, and (3) the low amount of priority placed on ELT and HLT by senior year medical students at both institutions suggests that minimal emphasis should be placed on error-based learning and choice-based learning tasks in the classroom. Hence, it is postulated that LLT, ILT, CLT, and ALT be designed to help improve student learning in class, while as ELT and HLT be designed to help improve student learning outside of class (e.g. homework and project work). The general implication suggests that most senior year medical students at private medical schools seem to place more priority on affective content than their counterparts at national medical schools.

6.14 Discussion of Learners' Priority Levels on English Skills (SQ17)

For item SQ17, the priority levels placed on speaking, listening, reading, writing, pronunciation, vocabulary, and grammar skills seems to indicate that most senior year medical students at UA and UB placed more emphasis on building oral proficiency skills than verbal proficiency skills. Furthermore, comparison of percentage values for speaking

at UA (74.7%) and UB (74.3%), listening at UA (67.6%) and UB (71.0%), reading at UA (47.1%) and UB (54.7%), and writing at UA (42.4%) and UB (35.7%) seems to suggest that senior year medical students at UA placed more priority on building productive language skills while as senior year medical students at UB placed more priority on building receptive language skills. These results seem to support similar findings by Chia et al. (1999) which showed that the majority of senior year medical students at a private Taiwanese medical school prioritized building listening (56.8%) skills, followed by speaking (44.8%), reading (38.0%), and writing (10.8%) skills. Hwang (2011) remarked that the increased emphasis placed on listening skills by Taiwanese medical students was a reflection of the perceived need amongst students to focus on building receptive skills prior to building productive skills. Additionally, percentage values for pronunciation at UA (31.0%) and UB (27.6%), vocabulary at UA (27.1%) and UB (25.3%), and grammar at UA (10.4%) and UB (11.4%) seems to indicate that senior year medical students at both institutions would prefer that these skills not be taught in isolation through specific courses, but rather in synthesis with one of the four main language skills (i.e. speaking, listening, reading, and writing). Unfortunately, the narrower scope of the previous studies prevents further analysis of the instructional value of integrating pronunciation, vocabulary, and grammar skills with the four main language skills. This suggests a need for further research to be conducted in this area at other medical institutions both in Japan and overseas.

Based on the findings from the study, it is possible to derive three specific implications for classroom instruction and learning: (1) the high amount of priority placed on speaking and listening skills by the majority of senior year medical students at both institutions suggests that primary emphasis needs to be placed on building proficiency in these two areas, (2) the amount of priority placed on reading and writing skills by senior year medical students at both institutions suggests that secondary emphasis needs to be placed on building proficiency in these two areas, and (3) the low amount of priority placed on pronunciation, vocabulary, and grammar skills suggests that these areas not be taught in isolation, but rather in synthesis with one of the four main language skills. It is postulated that combined language skill courses such as speaking & pronunciation, reading & vocabulary, or writing & grammar would be sufficient in meeting the needs of students without substantially adding to the overall number of language courses at medical schools. The general implication suggests that minimal differences exist between national and private senior year medical students regarding prioritized English language skills, although senior year medical students at private institutions seem to place more importance on receptive language skills than their counterparts at national institutions.

6.15 Discussion of Learners' Priority Levels on EMP Skills (SQ18)

For SQ18, the priority levels placed on MOC, MT, SW, and SCS skills seems to indicate that most senior year medical students at UA and UB placed more emphasis on achieving proficiency in communicative aspects of the medical language prior to building

academic or cognitive skills. Furthermore, comparison of percentage values for MOC at UA (56.8%) and UB (56.8%), and MT at UA (39.3%) and UB (39.3%) revealed that a similar amount of senior year medical students at both institutions seemed to place more priority on achieving communicative proficiency under medical contexts prior to building lexical skills under medical contexts. These results seem to support research findings in Taiwan which showed that understanding medical conversations in English was rated as an important skill to acquire by 46.3% of senior year medical students at a Taiwanese medical school (Hwang & Lin, 2010). In contrast, comparison of percentage values for SW at UA (38.3%) and UB (24.3%), and SCS at UA (15.8%) and UB (30.0%) seems to suggest that senior year medical students at UA placed more priority on building scientific writing skills while as senior year medical students at UB placed more priority on building cognitive skills. Significant differences between responses for SW and SCS at UA and UB seems to provide further evidence supporting findings in SQ15 that senior year medical students at national medical schools seem to place more priority on the acquisition of English language skills needed for research purposes, while as senior year medical students at private medical schools tend to place more priority on the acquisition of English language skills needed for clinical purposes. However, further comparisons with other institutions is not possible as previous studies did not attempt to rank priority levels placed on specific EMP skills such as medical terminology or problem-solving of case studies by senior year medical students. This suggests a need for further research to be conducted in

this area at other medical schools both in Japan and overseas.

Based on the findings from the study, it is possible to derive two specific implications for classroom instruction and learning: (1) the high amount of priority placed on MOC and MT by senior year medical students at both institutions suggests that primary emphasis needs to be placed on improving proficiency in these two areas through compulsory courses, and (2) the amount of priority placed on SW and SCS by senior year medical students at both institutions suggests that secondary emphasis needs to be placed on improving proficiency in these two areas by means of elective courses. It is postulated that the four EMP productive skills be best taught separately through specific courses that scaffold learning in order for students to be able to achieve a sufficient degree of proficiency in each area. Moreover, it is suggested that medical terminology courses be offered early on in the curriculum since an understanding of medical terminology is required for achieving proficiency in the other three areas. The general implication suggests that most senior year medical students at national medical schools tend to place more emphasis on scientific writing skills than their counterparts at private medical schools. Consequently, there is a need for specific elective courses that teach scientific writing skills at national medical schools in order to reflect the greater emphasis placed on medical research at these institutions.

Chapter 7

Conclusion

7.1 Overview of Chapter 7

This chapter provides a summary of the research study by examining the results of the sample survey in context of the three research questions. It highlights issues related to EMP education, training, and research, and proposes suggestions for improving the quality of EMP education at medical schools in Japan. The chapter concludes by outlining the limitations of the present study, and offers several recommendations for future research in the field. Section 7.2 summarizes the main findings and recommendations of the study. Section 7.3 discusses research question (1): What is the situation with regards to EMP education at university affiliated medical schools in Japan? Section 7.4 discusses research question (2): What differences exist regarding EMP learner needs between national and private university affiliated medical schools in Japan? Section 7.5 discusses research question (3): What improvements can be made in order to advance EMP education at university affiliated medical schools in Japan to international standards? Section 7.6 outlines some of the main limitations of the present study. Section 7.7 offers several recommendations for future research in the field of EMP.

7.2 Summary of the Research Study

In summary, this study provided a comparative statistical analysis of learner needs for a sample of senior year medical students surveyed at a national and private medical school in the Tokyo area over a one year period. It was found that the present system of a limited number of English language courses in the first year(s), followed by core EMP courses adopting a holistic approach to learning had a negative impact on the transfer of specific English language skills and EMP skills of senior year medical students from both institutions. This can be ascribed to a number of factors including: the restricted number of English language courses, the unspecificity of EMP courses, the lack of additional elective courses to support individual learner needs, the low proportion of certified ESL teaching faculty, and the low priority afforded to English language education within the medical education curriculum.

It is proposed that enhanced acquisition of English language skills and EMP skills can be brought about through an increase in core English language courses and a combination of core and elective EMP courses focusing on a specific skill. It is recommended that these changes be implemented through an ESP program that scaffolds the language learning process into EEP, EAP, EST, and EMP courses adjusted to meet learner needs and language ability levels. It is postulated that such a program can only be sustained in the long-term through improvements to the overall quality of education consisting of an increase in the number of full-time teaching faculty with an M.A. in

TESL/TEFL/TESOL, and full-time tenured faculty with a Ph.D. in Education or Applied Linguistics.

7.3 Situation of EMP Education at Medical Schools in Japan

Research question (1): What is the situation with regards to EMP education at university affiliated medical schools in Japan? As highlighted previously in section 3.5, a number of problems exist with regards to EMP education at university affiliated medical schools in Japan. Foremost, the irregularity (i.e. uneven spread) of EMP courses across the academic year is indicative of the relative low priority afforded to EMP courses compared to regular medical courses. This has a washback effect on a number of interrelated factors such as lowering motivational levels amongst medical students and faculty, lowering the number of full-time faculty positions, increasing student-teacher ratios, increasing the number of part-time teaching positions, lowering the standard of academic qualifications, and thereby lowering the overall quality of education. Consequently, medical schools must primarily increase the number of courses and full-time faculty positions in order to raise the quality of education to international standards.

Secondly, the variability in terms of course focus and class scheduling amongst institutions illustrates a lack of standardization amongst Japanese medical schools (and even within a single institution) with regards to undergraduate education. This causes an educational imbalance with the level of English language and medical English skills amongst medical school graduates being largely dependent upon the degree of institutional

emphasis placed on such courses. Therefore, all medical schools must establish common objectives concerning their undergraduate programs in order to ensure that an adequate standard of English language and medical English skills are covered in their courses.

Thirdly, the overemphasis on providing core EMP courses without provision for further elective courses severely restricts individualized learning and the intellectual freedom needed for maintaining advancements in the field of clinical practice and research. The reasons for the lack of elective courses in general at Japanese medical schools are manifold and include: (1) the low priority afforded to medical education compared to clinical practice and research, (2) the low priority given to non-essential medical courses in the curriculum, (3) the low ratio of teaching faculty in relation to the overall student population, (4) the lack of highly qualified teachers in general education and basic sciences, and (5) the lack of emphasis placed on promoting self-directed learning in students (Rao & Rao, 2007). As a result, medical students in Japan are unable to receive the same degree of intellectual freedom enjoyed by their counterparts at top U.S. or U.K. medical schools. Consequently, significant changes are needed in the medical education field if meaningful improvements to the quality of education at Japanese medical schools are to be made.

7.4 EMP Learner Differences Between National and Private Medical Schools

Research question (2): What differences exist regarding EMP learner needs between national and private university affiliated medical schools in Japan? As discussed previously, significant differences exist regarding EMP learner needs between a national

and private university affiliated medical school in Japan. The study revealed ten significant differences amongst the sample of senior year medical students surveyed at UA and UB:

1. It was found that the degree of satisfaction amongst senior year medical students regarding the adequacy of explanations provided by the teacher for completing classroom tasks varied depending on the institution and seems to suggest that clear understanding of instructions takes precedence over receiving instructions in the target language.
2. It was found that the degree of importance placed by senior year medical students on the English language for their medical studies varied depending on the institution and seems to suggest that there is a link between the degree of importance placed by medical students on the English language, and the amount of emphasis placed by the institution on overseas clinical training and medical research.
3. It was found that the amount of English usage by senior year medical students during their medical studies varied depending on the institution and seems to suggest that more opportunities for undertaking courses/seminars in English should be provided to students at national and private medical schools.
4. It was found that the self-assessed English language level of senior year medical students differed with respect to reading and grammar skills and seems to suggest that proficiency in the two skills is dependent upon exposure to a broad range of

reading materials and corrective feedback from the teacher.

5. It was found that the self-assessed EMP level of senior year medical students differed with respect to case study skills and seems to suggest that higher-order cognitive/linguistic skills tend to be difficult to acquire without adequate scaffolding of prior language skills.
6. It was found that the amount of hours senior medical students spend studying English outside of the classroom differed with respect to 0-1 hours and 3-6 hours and seems to reflect the amount of emphasis placed by the institution on TOEFL® iBT examination scores needed for overseas clinical training and medical research programs.
7. It was found that the preferred number of years for English language education at medical schools by senior year medical students differed for 0 years and seems to suggest that the perceived value of English language courses was dependent upon successful transfer of language skills needed by students majoring in specialist subjects.
8. It was found that the preferred instructional medium for lessons by senior year medical students differed with respect to English only instruction and bilingual instruction and seems to suggest that a more flexible approach towards language teaching is required that separates instructional mediums according to learner characteristics and language levels.

9. It was found that prioritized EMP learner goals of senior year medical students differed with respect to writing scientific articles and seems to suggest that there is a link between the degree of importance placed by medical students on writing scientific articles, and the amount of emphasis placed by the institution on medical research.
10. It was found that priority levels placed on EMP skills by senior year medical students differed with respect to scientific writing and case study skills and seems to suggest that students from national medical schools place more emphasis on skills needed for research purposes, while as students at private medical schools place more emphasis on skills needed for clinical purposes.

7.5 Improvements to the Quality of EMP Education at Medical Schools in Japan

Research question (3): What improvements can be made in order to advance EMP education at university affiliated medical schools in Japan to international standards? According to the results obtained from the sample survey and observations conducted in the field, several recommendations can be made in order to raise the quality of EMP education at university affiliated medical schools in Japan. These recommendations can be categorized into administrative issues affecting the quality of the EMP program, and academic issues affecting the quality of learner education. Recommendations affecting the quality of the EMP program are centered on administrative factors essential for maintaining a high quality of education and include:

1. Increasing the number of qualified full-time teaching faculty with an M.A. in TESL, TEFL or TESOL.
2. Increasing the number of qualified full-time tenured faculty with a Ph.D. in Education or Applied Linguistics.
3. Restructuring the present undergraduate medical education curriculum to enable for flexible learning and catering of individual learner needs.
4. Restructuring the present undergraduate medical education curriculum to enable for the scaffolding of skills in English language courses and EMP courses.
5. Conducting regular surveys that focus on learner needs for each grade level on a yearly basis as learner needs can change over time.

Recommendations affecting the quality of learner education are centered on academic factors essential for raising the English language proficiency of medical students to international standards and include:

1. Constructing an ESP program that scaffolds language learning into EEP, EAP, EST, and EMP courses with language and content adjusted to meet learner needs and language ability levels.
2. Increasing the number of core English language courses focusing on a specific language skill.
3. Providing additional elective courses focusing on language tests needed for overseas clerkships/studies (e.g. TOEFL® iBT, IELTS®).

4. Dividing the present system of holistic EMP courses into more specific courses focusing on medical communication, medical reading, and medical terminology.
5. Providing additional elective EMP courses focusing on the specific needs of learners such as scientific writing, and problem-solving of case studies.

7.6 Limitations of the Study

This dissertation focuses primarily on the needs of medical students enrolled in undergraduate medical programs at university affiliated schools in Japan. Therefore, the study does not cover non-affiliated medical schools in Japan such as the Red Cross or other medical institutions that provided EMP courses for dentists, nurses, pharmacists or medical technicians. Secondly, due to the need to limit the study to a specific student population for comparative analysis purposes, the study focuses only on the needs of senior year medical students and does not examine other academic years. Thirdly, in order to preserve the anonymity and privacy of respondents, personal information such as names, gender, or age was not collected during the data collection process. Fourthly, as the goal of this research was to objectively measure EMP learner needs at two different institutions, emphasis was placed on analysis of quantitative data through consistent statistical measurements (i.e. t-test values). Fifthly, in order for the quantitative data to be valid, it needed to be collected on-site at the end of the academic year when the respondents had recently completed (or was in the process of completing) their EMP education at their respective institutions. Lastly, in order for the data to remain current, data collection procedures tended to be

dictated by administrative issues and time constraints. Hence, the study was restricted to a sample population of senior year medical students at two universities in the Tokyo region where permission was granted to collect data within a one year time-frame.

7.7 Recommendations for Future Research

This comparative study revealed certain insights with regards to the needs of senior year medical students under ESP contexts from two different institutional systems. In addition, the study provided an initial attempt to correlate research findings in Japan with research findings from Taiwan. This research fills a gap in the ESP literature by enhancing our understanding of learner needs under different institutional systems, and builds upon findings obtained from previous international studies focusing on the needs of learners at specific institutions. It highlights the need for further comparative studies of learner needs under different institutional systems in order to provide researchers with a more complete understanding of language learning and skills acquisition in ESP contexts. Furthermore, it also suggests that there is a need to define ESP learner research in terms of the institutional system, academic field of study, course specificity, learner grade level, and language ability level of students. This would enable researchers in the future to create a comprehensive open-access database of learner needs under different ESP contexts for both research and education purposes. Therefore, future comparative studies of learner needs conducted through ESP research methodology and statistical analysis are required to further validate, and expand on the results obtained from this initial comparative study.

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Appendix A

Letter of Research Intent for Data Collection (in Japanese)

平成 24 年 2 月 15 日

拝啓

時下ますますご清栄のこととお慶び申し上げます。

さて、このたび医学英語教育に秀でておられる貴校において是非医学英語教育授業に参観させていただきたくご許可をお願い申し上げます。授業参観により得たデータとアンケート等は私の国際基督教大学大学院教育学研究科博士論文とパブリケーションに活用させていただきます。外部の関与はありません。データとアンケート等は全て匿名となりますが、ご希望があれば大学名を明記することも可能です。微力ではありますが、この研究がこれからの日本の医学英語教育の改善に少しでも役立つよう全力を尽くしたいと思います。何とぞご理解とご協力を賜りますようよろしくお願い申し上げます。

敬具

研究目的

日本での医学教育の改善が進められる中[※1] 、医学英語教育のカリキュラム構成と強化授業には十分な注意が払われていません。医学英語教育のカリキュラム構成と強化授業は日本の医学教育の土台の一部であり、その欠如は国際化への障害となり、また国際競争においての弱点となります。その対策として 1）カリキュラム構成 2）強化授業 3）医学英語論文の三つの要素で形成され統一された医学英語教育指導を全ての日本の医学教育機関で普及させることが重要です。

データ取り方法

平成 24 年度 4 月からの 2 人の常勤教師のクラスを交互に参観し、指導方法及び学生の学習様子等をノートに書き留めたいと思います※2。また学生に医学英語教育についてのアンケート調査の実施をお願いします。このアンケートは貴校と共同開発するものです。

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※2Wajnryb, R. (1992). *Classroom observation tasks: A resource book for language teachers and trainers*. Cambridge: Cambridge University Press.

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Appendix B

List of EMP Topics at University A (April 2012-March 2013)

Date	*Grade*	*Class*	*Main Topic*
04/11	M2	A2	Note-taking & Discussion: Immunology Podcast
04/13	M2	A3	Respiratory System: Acute Bronchitis
04/17	M2	A1	Presenting & Moderating: Practice Session
04/18	M2	A2	Student Presentations: Medical Specialties
04/20	M2	A3	Immunity & Allergy: Hay Fever
04/24	M2	A1	Student Presentations: Medical Specialties
04/25	M2	A2	Note-taking & Discussion: Orthopedics Podcast
04/27	M2	A3	Nervous System: Carpal Tunnel Syndrome (Part I)
05/08	M2	A1	Debate & Discussion: Nature vs. Nurture
05/09	M2	A2	Student Presentations: Pathology
05/11	M2	A3	Nervous System: Carpal Tunnel Syndrome (Part II)
05/15	M2	A1	Note-taking & Discussion: Gender Dysphoria Video
05/16	M2	A2	Student Presentations: Pharmacology
05/22	M2	A1	Student Presentations: Pharmacology
05/23	M2	A2	Case Study: 43-y.o. man w/fatigue & blurred vision (Part I)
05/25	M2	A3	Ophthalmology: Posterior Vitreous Detachment (Part I)

05/29	M2	A1	Note-taking & Discussion: Parasites Podcast
05/30	M2	A2	Case Study: 43-y.o. man w/fatigue & blurred vision (Part II)
06/01	M2	A3	Ophthalmology: Posterior Vitreous Detachment (Part II)
06/05	M2	A1	Practice: Neurological Examination Techniques
06/06	M2	A2	Case Study: 45-y.o. woman w/anemia & renal failure
06/08	M2	A3	Urinary System: Urinary Tract Infection (Part I)
06/12	M2	A1	History Taking: Patient Interview in 8 Stages
06/13	M2	A2	History Taking: Patient Interview in 8 Stages
06/15	M2	A3	Urinary System: Urinary Tract Infection (Part II)
06/19	M2	A1	Book Review: Format & Reading Practice
06/20	M2	A2	Book Review: Format & Reading Practice
09/04	M2	A1	Note-taking & Discussion: Organ Transplant Video
09/05	M2	A2	Note-taking & Discussion: Organ Transplant Video
09/11	M2	A1	Book Report: Open Format
09/12	M2	A2	Book Report: Open Format
09/14	M2	A3	Student Presentations: Open Format
10/02	M1	A1	Orientation: Medical English I
10/03	M1	A2	Orientation: Medical English I
10/09	M1	A1	Practice: Student Self-Introductions

10/10	M1	A2	Practice: Student Self-Introductions
10/16	M1	A1	Error Correction: Format & Rules
10/17	M1	A2	Error Correction: Format & Rules
10/23	M1	A1	Medical Reading: First Day
10/24	M1	A2	Medical Reading: First Day
11/13	M1	A1	Medical Reading: The Person With the Disease
11/14	M1	A2	Medical Reading: The Person With the Disease
11/20	M1	A1	Medical Writing: Short Summaries of Reading Texts
11/21	M1	A2	Medical Writing: Short Summaries of Reading Texts
11/27	M1	A1	Case Study: 74-y.o. woman w/rash & shortness of breath
11/28	M1	A2	Medical Reading: Five Patients
12/05	M1	A2	Note-taking & Discussion: Biological Clock Video
12/11	M1	A1	Note-taking & Discussion: Biological Clock Video
12/12	M1	A2	Medical Reading: Guide to Wards Success

Appendix C

List of EMP Topics at University B (April 2012-March 2013)

Date	*Grade*	*Class*	*Main Topic*
04/17	M4	B1	Nervous System: Clinical Neuroscience 1
04/24	M4	B1	Nervous System: Clinical Neuroscience 2
05/15	M4	B1	Endocrine System: Nutrition & Metabolism
05/29	M4	B1	Circulatory System: Terminology (Part I)
06/05	M4	B2	Circulatory System: Terminology (Part II)
06/12	M4	B2	Circulatory System: Terminology (Part III)
06/19	M4	B2	Respiratory System: Chronic Obstructive Pulmonary Disease
06/26	M4	B2	Respiratory System: Diffuse Panbronchiolitis
09/11	M4	B2	Gastrointestinal System: Diffuse Suppurative Peritonitis
09/18	M4	B1	Gastrointestinal System: Diagnosis of Cholelithiasis
09/25	M4	B2	Gastrointestinal System: Liver Abscess
10/02	M4	B1	Urinary System: Neuropathic Bladder
10/09	M3	B1	Psychiatry: Clinical Concepts
10/16	M4	B2	Urinary System: Urinary Diversion
10/23	M3	B2	Musculoskeletal System: Clinical Concepts (Part I)
10/23	M4	B1	Anesthesiology: Terminology

10/30	M3	B1	Musculoskeletal System: Clinical Concepts (Part II)
10/30	M4	B1	Student Presentations: Open Format
11/13	M3	B2	Ear, Nose, & Throat: Otology
11/20	M3	B1	Ear, Nose, & Throat: Rhinolaryngology
11/27	M3	B2	Ophthalmology: Cataract
01/08	M3	B1	Dermal System: Alopecia Areata
01/22	M3	B2	Blood & Lymphatic System: Cancer Therapy

Appendix D

Anonymous EMP Questionnaire for Medical Students (in English)

Exploratory (Problem) Type Questions (Chia et al., 1999; Hwang & Lin, 2010)

For Q1-7, please indicate your choice by circling one number. e.g. (0—1—②—3)

1. Were the instructions provided by the teacher adequate for the completion of the tasks? Inadequate (0—1—2—3) Adequate

2. How important is English for your medical studies? Unimportant (0—1—2—3) Important

3. How often do you use English in your medical studies? Low (0—1—2—3) High

4. How much English practice are you getting in your classes at university? Low (0—1—2—3) High

5. Was the level of medical English tasks consistent with your English levels? Easy (0—1—2—3) Difficult

Abilities Type Questions (Chia et al., 1999; Hwang & Lin, 2010)

6. How proficient are you in the following English language skill areas? Please circle one number.

Oral	Low (0—1—2—3) High
Aural	Low (0—1—2—3) High
Reading	Low (0—1—2—3) High

Writing	Low (0—1—2—3) High
Pronunciation	Low (0—1—2—3) High
Vocabulary	Low (0—1—2—3) High
Grammar	Low (0—1—2—3) High

7. How proficient are you in the following medical English skill areas? Please circle one number.

Medical Oral Communication	Low (0—1—2—3) High
Medical Terminology	Low (0—1—2—3) High
Scientific Writing	Low (0—1—2—3) High
Solving Case Studies in English (e.g. diagnosis)	Low (0—1—2—3) High

Attitudes Type Questions (Chia et al., 1999; Hwang & Lin, 2010)

8. How many hours of English do you study per week outside of class? Please circle one option.

[ ] 0-1hrs [ ] 1-3hrs [ ] 3-6hrs [ ] 6-12hrs

9. How many years of general English education do you perceive is best at your university? Please choose one option.

[ ] 0 years [ ] 1 year [ ] 2 years [ ] 3 years

[ ] 4 years [ ] 5 years [ ] 6 years

10. How many years of medical English education do you perceive is best at your university? Please choose one option.

[ ] 0 years [ ] 1 year [ ] 2 years [ ] 3 years

[ ] 4 years [ ] 5 years [ ] 6 years

11. How would you like the lessons to be organized? Please choose one option.

[ ] Teacher-centered, emphasis on accuracy

[ ] Teacher-centered, emphasis on fluency

[ ] Learner-centered, emphasis on accuracy

[ ] Learner-centered, emphasis on fluency

12. In what language should the lessons to be taught? Please choose one option.

[ ] English only

[ ] In English, but medical terms in Japanese

[ ] Japanese only

[ ] In Japanese, but medical terms in English

13. Which way of classroom learning do you prefer? Please choose one option.

[ ] Individual learning

[ ] Group learning

14. What percentage of the lesson should be devoted to audio-visual tasks? Please choose one option.

[ ] 0% [ ] 25% [ ] 50% [ ] 75% [ ] 100%

Priorities (Q-sort) Type Question (Chia et al., 1999; Hwang & Lin, 2010)

15. Please rank from [1] to [9] the following medical English skills according to importance for your future career as a medical doctor.

[__] Being able to talk with patients in English

[__] Being able to take patient notes in English

[__] Being able to present oral reports in English

[__] Being able to read medical journals in English

[__] Being able to write research papers in English

[__] Being able to understand class lectures in English

[__] Being able to understand medical terminology in English

[__] Being able to study abroad in English-speaking countries

[__] Being able to work in hospitals or research centers abroad

16. Please rank from [1] to [6] the following task design areas according to importance based on your learning needs.

[__] Tasks based on improving English language skills

[__] Tasks based on improving medical English skills

[__] Tasks based on improving communication skills (e.g. role plays)

[__] Tasks based on improving student motivation

[__] Tasks based on correcting student errors (e.g. correction of writing errors)

[__] Tasks based on student preferences (e.g. choosing presentation topics)

17. Please rank from [1] to [7] the following English language skills according to importance based on your language needs.

[__] Speaking

[__] Listening

[__] Reading

[__] Writing

[__] Pronunciation

[__] Vocabulary

[__] Grammar

18. Please rank from [1] to [4] the following medical English skills according to importance based on your medical English needs.

[__] Medical Oral Communication

[__] Medical Terminology

[__] Scientific Writing

[__] Solving Case Studies in English (e.g. diagnosis)

Appendix E

Anonymous EMP Questionnaire for Medical Students (in Japanese)

医学英語教育に対して：医学生用無記名アンケート

1~7 の質問に○をつけて下さい。例. (0—1—②—3)

1. 先生からの指示は学習内容をこなすのに十分でしたか。　不十分　(0—1—2—3)　十分

2. あなたの医学の勉強にとってどのくらい英語が重要です　重要でない (0—1—2—3)　重要か。

3. あなたは医学の勉強で英語をどのくらい使いますか。　少ない　(0—1—2—3)　多い

4. 大学の授業でどのくらい英語の学習をしていますか。　少ない　(0—1—2—3)　多い

5. 全体的な医学英語の授業のレベルはあなたの英語レベル　易しい　(0—1—2—3)　難しいには合っていますか。

6. あなたの英語力レベルを教えて下さい。以下の質問に○をつけて下さい。例. (0—1—②—3)

スピーキング	低い　(0—1—2—3)　高い
リスニング	低い　(0—1—2—3)　高い
リーデイング	低い　(0—1—2—3)　高い
ライテイング	低い　(0—1—2—3)　高い
発音	低い　(0—1—2—3)　高い
単語	低い　(0—1—2—3)　高い
文法	低い　(0—1—2—3)　高い

7. あなたの医学英語力レベルを教えて下さい。以下の質問に○をつけて下さい。例. (0—1—②—3)

医療オーラル・コミュニケーション　　低い　(0—1—2—3)　高い

医学英語用語　　低い　(0—1—2—3)　高い

科学論文の書き方　　低い　(0—1—2—3)　高い

英語でのケーススタディー　（例：症例報告）　　低い　(0—1—2—3)　高い

8. 授業以外で週に何時間くらい英語を勉強していますか。一つ選んで、[○]をつけて下さい。

[　　] 0-1 時間　　[　　] 1-3 時間　　[　　] 3-6 時間　　[　　] 6-12 時間

9. 大学における一般英語教育は何年間が最適と思いますか。一つ選んで、[○]をつけて下さい。

[　　] 0 年　　[　　] 1 年　　[　　] 2 年　　[　　] 3 年

[　　] 4 年　　[　　] 5 年　　[　　] 6 年

10. 大学における医学英語教育は何年間が最適と思いますか。一つ選んで、[○]をつけて下さい。

[　　] 0 年　　[　　] 1 年　　[　　] 2 年　　[　　] 3 年

[　　] 4 年　　[　　] 5 年　　[　　] 6 年

11. どのような授業形態が良いと思いますか。一つ選んで、[○]をつけて下さい。

[　　] 先生中心で、間違いを細かく修正する　[　　] 先生中心で、間違いにあまりとらわれない

[　　] 学生中心で、間違いを細かく修正する　[　　] 学生中心で、間違いにあまりとらわれない

12. 授業は何語が良いと思いますか。一つ選んで、[○]をつけて下さい。

[　　] 英語のみ　　[　　] 英語で、但し医学用語は日本語

[　　] 日本語のみ　　[　　] 日本語で、但し医学用語は英語

13. どちらの授業の形態がいいと思いますか。一つ選んで、[○]をつけて下さい。

[　　] 個々での学習　　[　　] グループでの学習

14. 視聴覚教材の使用は授業の何%にしたらよいですか。一つ選んで、[○]をつけて下さい。

[　　] 0%　　[　　] 25%　　[　　] 50%　　[　　] 75%　　[　　] 100%

15. 将来の医者として働く上で、どのような医学英語力が必要だと思いますか。必要だと思う順に[　]内に 1～9 まで番号を入れてください。

[___] 英語で患者と会話をする

[___] 英語で患者のカルテを作成する

[___] 英語でレポートを発表する

[___] 英語の医学論文を読む

[___] 英語の研究論文を書く

[___] 英語の授業を理解する

[___] 英語の医学用語を理解する

[___] 英語圏の国に留学する

[___] 海外の病院や研究所に勤務する

16. あなたが必要と思う授業内容は何ですか。必要だと思う順に[　]内に 1～6 まで番号を入れてください。

[___] 医学的に限らず、英語力を高めるような授業

[___] 医学的な英語力を特に高めるような授業

[___] 会話力を特に高めるような授業（例：医師－患者間のロールプレイなどを通して）

[___] 学生のモティベーションを高めるような授業

[___] 学生の英語の間違いを修正していくような授業（例：英作文の添削など）

[___] 学生自身が授業の進め方を決めていけるような授業（例：プレゼンのトピックスを自由に選ぶ）

17. あなたが必要だと思う英語の能力は何ですか。必要だと思う順に[　]内に 1～7 まで番号を入れてください。

[___] スピーキング

[___] リスニング

[___] リーデイング

[___] ライテイング

[___] 発音

[___] 単語

[___] 文法

18. あなたが必要と思う医学英語分野は何ですか。必要だと思う順に[　]内に 1～4 まで番号を入れてください。

[___] 医療オーラル・コミュニケーション

[___] 医学英語用語

[___] 科学論文の書き方

[___] 英語でのケーススタディー　（例：症例報告）

Appendix F

Format of Notes for EMP Classroom Observations

Observation Date: Observation No.: Lesson Focus:

University: (A – B) Class: (A1 – A2 – A3 – B1 – B2) Level: (M1 – M2 – M3 – M4)

Lesson Phases and Task Types Encountered During Instruction

Lesson Phases	Task Type	What Teacher Does	What Learners Do
0–30min	A – B – C – D	1. 2. 3. 4.	1. 2. 3. 4.
<60min	A – B – C – D	1. 2. 3. 4.	1. 2. 3. 4.
<90min	A – B – C – D	1. 2. 3. 4.	1. 2. 3. 4.

<120min	A – B – C – D	1. 2. 3. 4.	1. 2. 3. 4.

Key: A (Teacher-directed, accuracy), B (Learner-directed, accuracy), C (Teacher-directed, fluency), D (Learner-directed, fluency)

Open Notes

_____

_____

_____

_____

_____