Investigating the Demands on Students of English Medium Instruction (EMI) Courses to Better Focus English for Academic Purposes (EAP) Courses

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英語による専門科目（EMI）の受講に必要な英語スキルに関する
調査——アカデミック英語科目（EAP）の方向性を探る

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Abstract

As English-Medium Instruction (EMI) courses become more and more common, English for Academic Purposes (EAP) courses, which typically serve as preparation for academic studies in English, need to adapt to target the particular skills and abilities that students need to succeed in EMI. This study, undertaken at a university in Japan which is greatly expanding its provision of EMI courses, aimed to gain a concrete understanding of the specific demands of EMI courses at the institution in order to further develop the university's EAP programme. By surveying EMI instructors as to the tasks students undertake in their classes and the ability of students to deal with those tasks, four core skills were identified as requiring particular attention in the EAP courses, namely, writing essays/reports in English, engaging in discussions in English, listening to lectures given in English, and reading papers/book chapters/other written materials in English. Aspects of these skills are catered to within the current EAP courses, but there are also possible ways in which the courses could be adapted to provide more effective preparation for students prior to taking the EMI courses.

英語による専門科目（EMI）コースがますます一般的になるにしたがって、主として英語で学術研究をするための準備として位置づけられているアカデミック英語（EAP）は、学生が EMI コースで成功するために必要なスキルや能力に焦点を当てるよう適応しなければならない。EMI コースの開講が大幅に拡充しつつある日本の一大学で調査された本研究は、本学の EAP プログラムをより発展させるために、学内の EMI コースでの具体的な要求を明確に理解することが目的である。EMI コースを担当する教員に、授業内で学生が行う課題や、そのために必要な能力について調査をすると、EAP コースでは、四つの中核となるスキル——エッセイやレポートを英語で書くスキル、英語で議論をするスキル、英語で行われるレクチャーを聞くスキル、そして英語で書かれた論文や本のチャプター、その他の資料を読むスキル——に特に注力する必要があることが明らかになった。これらのスキルは現行の EAP コースでも扱われているが、学生が EMI コースを受講する前により効果的な準備ができるよう、EAP コースを適応させることが可能である。

1. Introduction

English Medium Instruction (EMI) has grown rapidly in recent years, with one report stating that almost 8,000 courses were being taught in English at universities in non-English-speaking countries (Mitchell, 2016). Students around the world are thus grappling with the challenge of learning complex content knowledge through a language that is not their first language. The task of preparing students for studies in English has traditionally fallen to English for Academic Purposes (EAP) courses. Much of the advice on EAP and many EAP curricula and teaching materials presuppose students from various language backgrounds studying in English-speaking countries. However, with the rapid spread of EMI, EAP courses today may well be offered in non-English speaking countries to help students make the transition to EMI. Given the different contexts and different goals for students, such EAP courses may need to take on a different hue from those that prepare students to study in English-speaking countries.

This paper reports on a study, carried out at a university in Japan at which the provision of EMI is rapidly expanding, which sought to gain a better understanding of the specific demands of EMI courses offered at the university in order to advance the university's EAP programme. The paper begins by discussing the global, local and institutional growth of EMI, the relationship between EAP and EMI and previous research on learners' difficulties in EMI courses. It then describes the study itself, which was based on a survey of EMI instructors seeking insights into the tasks required of students in their classes and the instructors' perceptions of how well students are able to deal with these requirements. The results are then discussed with reference to the university's current EAP courses and possible directions in which the EAP courses may need to evolve.

2. Background

2.1. Defining English-medium instruction

There is no single agreed definition of "English-medium instruction". However, one oft-cited definition is "the use of the English language to teach academic subjects in countries or jurisdictions where the first language (L1) of the majority of the population is not English" (Dearden, 2015, p. 2). This definition guides the general discussion of EMI in this paper, but a more precise definition is used when discussing the specific case of the university in question, as explained below.

Much of the interest in EMI stems from the idea that it allows two things to be achieved at once, as students both develop their English proficiency and acquire academic content at the same time. With regards to language learning, Macaro (2018) contrasts EMI with other approaches, such as content and language integrated learning (CLIL), content-based instruction (CBI) and English as a Foreign Language (EFL). These approaches can be placed on a continuum, with EMI at one end being almost entirely concerned with content, EFL at the other end being language focused and CLIL and CBI somewhere in the middle, balancing both language-learning and content-learning goals. With EMI then, language learning takes place as a by-product of content learning and, crucially, the sug-

gestion is that learning content through English can have content-learning outcomes equivalent to learning through the L1 (Macaro, 2018).

2.2. EMI in the world and in Japan

EMI defined as above is a relatively new development (Macaro, 2018). In Europe, higher education EMI courses and programs have increased dramatically in the last twenty years (Wächter & Maiworm, 2008, 2014), with Europe-wide projects such as the ERASMUS (European Region Action Scheme for the Mobility of University Students) exchange program, the Bologna Process, and the European Higher Education Area being the main driving force (Coleman, 2006). Interestingly, however, the spread of EMI courses does not necessarily equate to high numbers of students taking EMI courses all over Europe. According to Wächter and Maiworm (2014), only 1.3% of the total number of students were enrolled in EMI courses in 2014. Therefore, although it is true that EMI has increased dramatically in Europe, it would be an overstatement to say that English has become *the* language of higher education for the majority of students in Europe.

In Asia as well, the introduction of EMI has often been led by governments and education policy makers, as seen in China, Korea, and the ASEAN countries (Hu & Lei, 2014; Kirkpatrick & Liddicote, 2017; Macaro, 2018; Wang, 2019; Park, 2019). In Japan too many EMI courses and programs have been created in recent years through Ministry of Education, Culture, Sports, and Technology (MEXT) initiatives. The internationalization of higher education and student mobility have become governmental concerns (see Hashimoto, 2018; Rose & McKinley, 2018), as reflected in the creation of competitive funding programmes for higher education such as the Global 30 Project (MEXT, 2009), Go Global Project (MEXT, 2012) and Top Global University Program (hereafter TGUP; MEXT, 2014a). However, as in Europe, the increase in EMI course numbers in Japan has not necessarily resulted in a high number of students taking such courses. According to one survey, only a small proportion of students (less than 5% in the majority of cases) are taking EMI courses (Brown, 2016).

2.3. EMI at Kanazawa University

This study was conducted at a Type B (Traction) Top Global University fund recipient. The university's TGUP application document stated that by the end of the project in 2023 50% of undergraduate courses and 100% of post-graduate courses would be EMI courses (Kanazawa University, 2014). As the proportions of EMI courses at the time of application (2013) were 2.4% (undergraduate) and 3.9% (post-graduate), this is, as the MEXT assessment commented, an "exceptionally high level to aim for" (MEXT, 2014b).

The ambitious nature of the plan becomes apparent when comparisons are made with other TGUP recipients or the situation outside Japan. For instance, the top-ranking university in Japan is planning to make 10% of undergraduate and 25% of post-graduate courses EMI (The University of

Tokyo, 2014), a high-ranking university of foreign language studies is aiming for 17% of its courses to be EMI (Tokyo University of Foreign Studies, 2014), and a long-standing bilingual university known for students' high English proficiency level is aiming for 40% (International Christian University, 2014). Looking abroad, a 2012 survey in a major Swedish university found that among its departments 35% of courses at most were EMI (Kuteeva, 2019). Sweden has the highest English Proficiency Index in the world (Education First, 2018). Japan, by contrast, is in the low proficiency category (the second lowest of five categories) in the English Proficiency Index (Education First, 2018), and in 2015 only 10% of students in Kanazawa University achieved more than 750 points in the TOEIC test (Shibata, 2015), equivalent to CEFR band upper B1 (MEXT, 2015). The aims for EMI provision in the university's TGUP application document (i.e. 50% of undergraduate courses and 100% of post-graduate courses) imply, therefore, radical change, from a traditional upper-middle range Japanese national university to a truly "bilingual university" (Shibata, 2015).

The university's movement towards EMI is explained in its "Englishization Manifesto" (Shibata, 2015) written by the Director of Education. To define EMI, the manifesto quotes an oral explanation given by MEXT's Office for International Planning: When 80% of a lesson is conducted in English, and 80% of the total number of lessons consist of such lessons, it means that the course is conducted in English (p. 4). While, as the manifesto notes, it is not clear whether these figures pertain only to oral language use or whether they include written materials as well, this is also the definition the university used in its TGUP application document.

According to the manifesto, the objective of the "Englishization of instruction" is to develop globalized human resources. More specifically, the aims are that (1) students will be able to understand lectures and content in their specialized field in English, and (2) improve their English communication abilities for future use in the workplace.

The manifesto rejects the idea of making the university 100% EMI. It stresses that it is necessary for students to understand and make use of academic knowledge in Japanese as well, and thus outlines five forms that instruction may take:

1) 100% EMI: Oral instruction and teaching materials are exclusively in English.

2) Partial EMI: A substantial part of oral instruction and teaching materials are in English.

3) Limited EMI: Explanations (oral and written) and discussions are in English when beneficial and effective, but the amount of English used is not high.

4) EMI in Teaching Materials: Teaching materials are in English when beneficial and effective.

5) 100% Japanese: Oral instruction and teaching materials are exclusively in Japanese.

These four types of EMI, the manifesto explains, may be appropriate for students in different departments and for students at different stages in their university studies.

Notably, the manifesto argues that Type 1 instruction (i.e. 100% EMI) is not necessarily beneficial for students and that Type 2 instruction need not be strictly above the 80% level (the level defined in the TGUP application plan). The manifesto concludes that the university should strive for the TGUP application commitments, but not to the detriment of its students, and what is important is for all faculty members to take part in the process of Englishization (even if it is Type 3 or Type 4 instruction).

Despite the manifesto's statement above, the university is currently pressing for the Englishization of instruction in order to achieve the TGUP commitment. A considerable number of EMI courses have been created in various departments as a result. As courses are only deemed EMI by self-declaration, it is not clear strictly how much of each course is conducted in English. However, in the 2016 academic year, 16.3% of courses in the university were officially EMI courses (Kanazawa University, 2017).

2.4. Preparing Students for EMI courses

As explained above, the university in this study is undergoing major change by attempting to increase greatly the number of EMI courses it offers. In order to facilitate this, changes have been made in various areas, in particular in the first-year compulsory English language curriculum. The aim of the curriculum is to assist in the achievement of the TGUP application goals. In addition to the EMI goals described above, the university aims for 75% of undergraduate students and 85% of post-graduate students to attain a TOEIC score of 760 points or a TOEFL-iBT score of 80 points, equivalent to CEFR band B2. Thus, all first-year students (except for those with high English proficiency) are required to take eight eight-week compulsory English language courses—four TOEIC test preparation courses and four EAP courses—each of which consists of a single 90-minute lesson each week.

The EAP courses, the focus here due to their relationship with EMI, have common syllabi and teaching materials. EAP I and EAP II are parallel courses held in the first quarter. EAP I focuses on paragraph writing (specifically, descriptive and opinion paragraphs) and EAP II looks at public speaking (specifically, informative and opinion presentations). EAP III and EAP IV are held consecutively in the third and the fourth quarters. EAP III focuses on summary writing (based on 600–800-word reading passages) and EAP IV looks at essay writing (making use of two 800–1200-word reading passages and a third source of the students' own choosing), while learning about plagiarism and citations is an important element of both courses.

2.5. EAP and EMI

EAP courses have been offered to students in higher education institutions around the world in order to assist in their preparation for studying in English-speaking environments for many years. Research into EAP in the last century was mainly carried out in countries where English is spoken as an L1, a factor reflected in the focus of much of this research. Evans and Morrison (2011), for example, point out how academic writing has been a dominant concern of investigations of EAP due to the tradition in the US of freshman composition classes.

In the 21st century, the situation surrounding EAP has changed substantially. With the spread of EMI courses around the world, there are now many EAP learners in countries where the majority of the population does not speak English (Björkman, 2008, 2011). EAP has therefore to adapt to settings where English is a medium of instruction, but is not used much outside the classroom or in the society in general (Evans & Morrison, 2011). Furthermore, as Brown and Adamson (2012) observe, in settings such as Japan, while EMI courses may be taught in English, classroom practices and culture may nonetheless maintain local academic norms. Consequently, EAP courses preparing students for such classes need to reflect the actual needs of learners in such classes.

It is therefore necessary, for the further development of EAP programmes, to understand the needs of learners in EMI classes. Unfortunately, as Brown (2016) reports, there is often little communication between EAP course instructors and EMI course instructors. There are, though, scholarly findings that provide some insights into learners' needs. One fundamental need of course is language proficiency, with the effect of lack of proficiency on the learning of subject content frequently cited as a concern (e.g. Doiz, Lasagabaster, & Sierra, 2013; Galloway, Kriukow, & Numajiri, 2017). Beyond this, a number of studies have investigated the challenges students face in EMI classes, three of which are summarised below.

Evans and Morrison (2011) explored the experiences of first-year students in EMI classes at a university in Hong Kong. Through interviews with 28 students, they identified four main challenges faced by the students: (1) understanding technical vocabulary, which hindered comprehension of both lectures and reading materials; (2) comprehending lectures, due to the presence of technical vocabulary and difficulties with instructors' accents; (3) developing an appropriate writing style, as the students perceived that a different style from secondary school was needed and that lexical and syntactic variation was valued; and (4) adapting to academic culture and conventions, with problems including unfamiliar learning and teaching methods and specific requirements in their discipline such as referencing conventions.

Taguchi and Naganuma (2006) carried out interviews with 13 students at an EMI university in Japan on the adjustment difficulties they faced there. All 13 reported that listening was the primary difficulty, which was ascribed by most to limited opportunities for listening in high school English classes. Eight students stated that oral communication was a problem, again mostly ascribed to the limitations of high school. Twelve reported struggling with reading requirements, describing how the

way they had been taught to read in high school, involving word-for-word translation, was hopelessly inefficient and unsuitable for academic reading. Finally, 10 of the 13 students experienced difficulties producing paragraph-level discourse, their previous writing experience being limited to sentence-by-sentence translation with no opportunities to express their ideas or to appreciate writing as a meaning-producing process.

Aizawa and Rose (2018), in another interview-based study involving seven students at a university in Japan, reported that students have problems in EMI classes regardless of their English ability, though the types of problems experienced varied with proficiency. High-proficiency students found the amount of writing demanded of them challenging and reported problems with essay organisation skills; intermediate students struggled to comprehend lectures and reading assignments and understand technical vocabulary; and low-proficiency students had problems understanding their instructors, taking part in discussions, and taking notes.

These research findings give some indications of the demands of EMI. Each study, however, looks only at a single university and thus the generalisability of the findings may be doubted. To further develop the EAP courses at Kanazawa University, then, an understanding of the particular requirements of the EMI classes at the university is necessary. It should be noted that future EMI courses are not the only possible way students may go on to use the skills gained through the first-year EAP courses. Some may go on to study abroad. However, although the university encourages this, it is more likely that students will take academic courses in English within the university since the university's TGUP application document states that 50% of undergraduate courses will be EMI by 2023, while only 10% of students are expected to take credit courses abroad (and this includes non-English courses).

This study therefore had two aims:

1) to identify the skills and abilities that are needed by students to take EMI courses within Kanazawa University;
2) to evaluate the extent to which the university's current EAP courses help students develop those skills and abilities.

3. Method

In order to pursue the above aims, a questionnaire was developed for instructors of EMI courses to obtain insights into their perspectives on the skills and abilities that students require for EMI courses. This questionnaire (see Appendix) had two sections. The first sought background information about the respondents and the EMI courses they teach. The second dealt directly with the skills and abilities needed for EMI courses, with questions about what students are required to do in EMI classes, how well students can do these things and whether instructors feel limited in what they can require of students. These questions purposefully focused on tasks that may be required of students in classes rather than asking about linguistic difficulties (e.g. lack of vocabulary, problems with connected

speech) since the questionnaire was meant for content teachers who may not feel qualified to make judgements about matters of language. There were both multiple-choice questions, in order to obtain easily analysable data, and open-ended questions, in order to give instructors an opportunity to more freely express their thoughts. Since there are EMI instructors whose first language is Japanese and instructors with other first languages, all the information about the research and the questionnaire itself were provided in both Japanese and English. The questionnaire and the plan for the research project were approved by the Human Subjects Research Ethics Review Committee of the Institute of Liberal Arts and Science.

The target participants for the questionnaire were all EMI instructors in Kanazawa University. Unfortunately, there was no simple way of identifying EMI courses through the university's syllabus database. Consequently, a list of courses that are taught in English (i.e. courses in which at least 80% of instruction is in English) was obtained from the Academic Affairs Section of the Student Affairs Division. This list contained both EMI courses and language courses, so the latter were manually excluded. In addition, the list was only available for the previous academic year (i.e. 2017) rather than the current academic year and it was found that some instructors were no longer with the university. Furthermore, for some courses, no instructor was listed. Ultimately, 116 instructors of EMI courses were identified.

The questionnaire was administered through the university's learning management system, since this provided a secure and convenient means of collecting the data. The 116 instructors were contacted by email and requested to complete the questionnaire. In addition, a letter requesting the cooperation of instructors was sent by the Dean of the Institute of Liberal Arts and Science to all the other deans in the university. The email to EMI instructors explained the background and aims of the research, advised instructors that completion of the questionnaire would constitute their giving consent for their responses to be used in the research and informed instructors that their responses would be anonymous.

Responses were received from 28 EMI instructors, a response rate of 24%. Unfortunately, two respondents gave responses with respect to classes that are not EMI courses and so their responses were excluded. In addition, there were four respondents who only answered either the first or the first two questions, and so their responses were also excluded. The responses from 22 respondents were then considered valid and are analysed below, representing 19% of EMI instructors.

Analysis of the questionnaire data for the most part entailed simple tabulation of the responses, the number being insufficient to allow statistical analyses to be conducted. For the open-ended questions, a content analysis of the data was performed. Following Gillham (2007), this involved reviewing each response and marking the substantive elements within it, deriving an initial set of categories by going through the marked statements, reflecting on the initial set of categories and going through the substantive elements once more to ensure each fits into a category, concurrently modifying the categorisations and category names. As may be expected from the above description, some respond-

ents gave longer responses which contained multiple substantive elements, meaning that a single response could be counted in more than one category.

4. Results

4.1. Background questions

The vast majority (19 out of 22) of the respondents reported that Japanese was their first language. These respondents teach courses across a variety of colleges and schools within the university. As Table 1 shows, twenty respondents, as requested, named the EMI course they teach which has the highest enrollment. In four cases, the exact course concerned could not be identified or was a general studies course, but of the remaining 16, nine courses were in the College of Human and Social Sciences and seven in the College of Science and Engineering. Moreover, within the College of Human and Social Sciences, the named courses were from five of the six schools and within the College of Science and Engineering, from four of the seven schools. Unfortunately, although requests for participation were sent to a number of faculty members in the College of Medical, Pharmaceutical and Health Sciences, none of the named courses were in that college. The questionnaire responses cannot then be said to fully represent all the fields taught at the university, but do provide a range of views.

The median enrollment for the EMI courses, as reported by the respondents, was 30 (Min. = 5; Max. = 70) and so the responses give an insight into the experiences of several hundred students in all. The vast majority of these students gain passing grades: all twenty instructors who responded to this question reported that at least 71% of students pass, with ten instructors reporting that at least 91% of students pass the course.

Finally, 14 of the 22 instructors see the purpose of their course as improving students' content knowledge and eight as improving students' academic skills. In this respect, then, the courses in question do appear to be genuine EMI courses (as opposed to, for example, CLIL courses) in

Table 1. Representativeness of responses

College	Number of courses
College of Human and Social Sciences	9
College of Science and Engineering	7
College of Medical, Pharmaceutical and Health Sciences	0
General studies/Unidentifiable	4
No response	2
Total	22

that, while they may result in improvements in students' English skills, they are not language learning courses but simply courses taught in English.

4.2. Primary questions

The first primary question enquired about tasks students need to do in EMI courses. Respondents were free to choose multiple options from a list and could give other responses if necessary. Table 2 presents the results. In total, there were 89 responses, meaning that on average each EMI course involves four of the tasks. As can be seen, there were two tasks, listening to lectures given in English and reading written materials in English, that a strong majority of the courses involve. There were a number of tasks that approximately a third of the courses involve: writing essays/reports in English, engaging in discussions in English, watching videos presenting content in English, taking notes in English and giving presentations in English. Finally, there were some tasks only a smaller number of the courses involve: writing summaries in English of reading materials, synthesizing information from multiple sources written in English and finding sources in English.

Respondents then indicated how well students are able to do the tasks their course involves. As Figure 1 shows, instructors' evaluations of students' skills/abilities were broadly similar across the various tasks. There were, nonetheless, differences and a first analysis was made by comparing the proportion of "few problems" responses with the proportion of "significant problems" responses. There were more "few problems" responses with respect to listening to lectures given in English,

Table 2. Number and proportion of EMI courses involving different tasks

Task	Number of responses	As percentage of respondents
Listening to lectures given in English	19	86
Reading papers/book chapters/other written materials in English	15	68
Writing essays/reports in English	9	41
Engaging in discussions in English	8	36
Watching videos that present content in English	8	36
Taking notes in English	7	32
Giving presentations in English	7	32
Writing summaries in English of reading materials	5	23
Synthesizing information from multiple sources written in English	5	23
Finding sources in English	4	18
Other	2	9

reading written materials in English, watching videos that present content in English, taking notes in English, giving presentations in English, synthesizing information from multiple sources written in English, and other. In contrast, there were more "significant problems" responses with regard to writing essays/reports in English, engaging in discussions in English and finding sources in English. For writing summaries in English of reading materials, meanwhile, there were an equal number of "few problems" and "significant problems" responses.

To gain a different perspective on this data, a second analysis was conducted in which the "some problems" and "significant problems" categories were combined. The mean proportion for these two categories combined was 68%. The following tasks, listed in descending order of difficulty for students, had a combined proportion greater than this, indicating that they may cause relatively more problems: finding sources in English, writing summaries in English of reading materials, engaging in discussions in English, writing essays/reports in English, giving presentations in English and watching videos that present content in English.

Eighteen instructors responded as to whether they felt unable to do certain things in their EMI course because of limitations in students' English skills/abilities. Of these, five instructors reported not feeling restricted in any way (with two of these instructors commenting that their courses re-
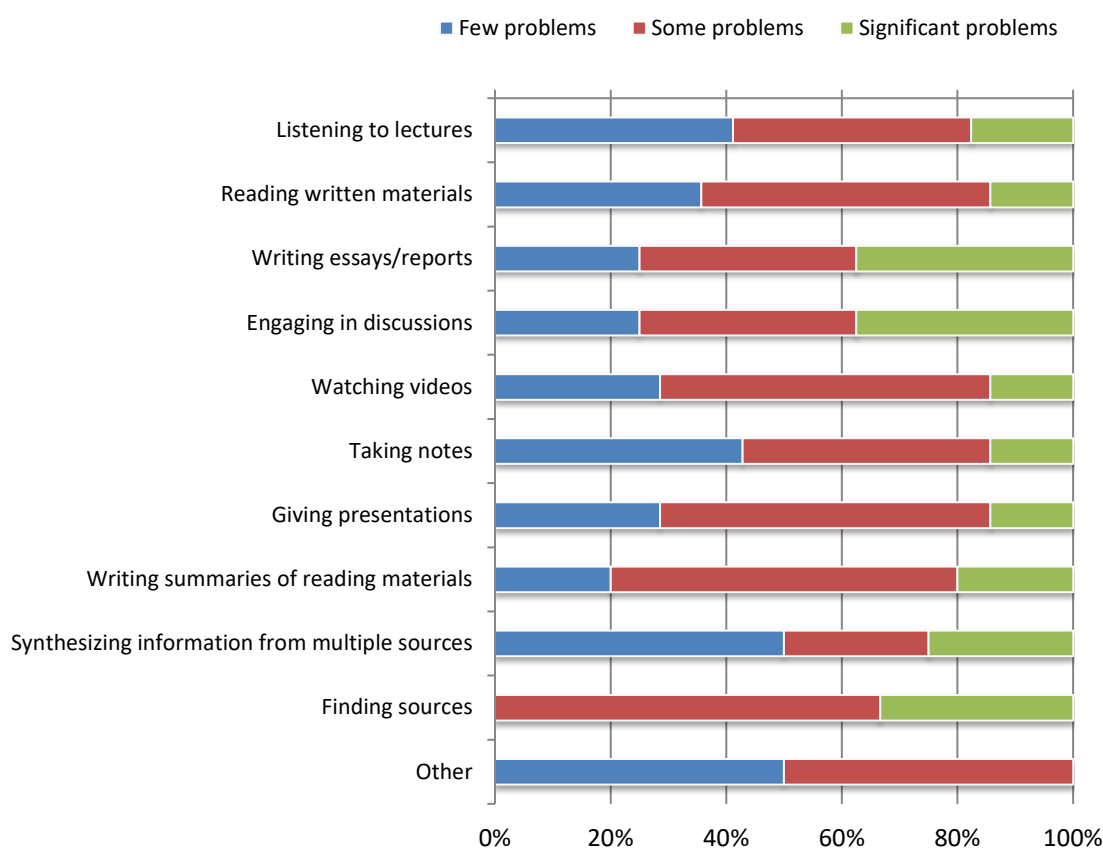

Figure 1. EMI instructors' perceptions of students' difficulties with various tasks

quired academic skills or content knowledge and that the students' English is unproblematic), one response was somewhat ambiguous, and 12 instructors reported that they did indeed feel restricted in various ways.

The 12 comments from these instructors were analysed as falling into two categories (with one comment containing substantive elements related to both categories). First, there were four comments about students' lack of ability to express themselves in English. Some comments suggested that the problem is a simple lack of ability, others that the issue is that students lack confidence in their ability. Either way, instructors report that students are reluctant to ask questions, voice opinions or engage in discussions. In the second category were nine comments related to students' lack of understanding when content is presented in English (whether orally or in written form). The comments indicated that this has two consequences for EMI classes. One is that Japanese is used quite frequently to supplement information given in English. This can take the form of bilingual Powerpoint slides presenting key content or supplementary oral explanations given in Japanese. The other consequence is that more time is taken, as key points are covered in both English and Japanese or as slower, more careful English explanations are given. This in turn means that either the content that is covered in the course has to be limited to some extent or that less time is available for student discussions. These issues very much match those highlighted in a number of studies reviewed by Macaro (2018), who also summarises studies of learners' views on EMI in which similar concerns about inefficiency were expressed.

The final questionnaire prompt elicited 18 responses about the skills and abilities that students need for EMI courses. Ten of these responses described what students require, with some responses listing multiple requirements. There were five comments about speaking skills, with instructors emphasizing that students need to be able to explain content presented to them in their own words, to be able to express their opinions about subject content, to be active in asking questions and to strive to communicate their ideas even when it is challenging. Four comments mentioned reading, noting that students have a lot of difficulties in comprehending academic texts. There were three comments about listening, pointing out that students struggle to keep up with normally paced speech and stressing that students have to keep listening carefully despite the material being demanding. Finally, there was one comment each about critical thinking and vocabulary.

Some of the responses to this prompt, however, were not so much answers to the question, but more concerned with the general situation regarding EMI at Kanazawa University. Some instructors seemed to feel that there is a kind of chicken-and-egg situation. In the eyes of these instructors, if the students had greater English ability, they might be better able to acquire complex content knowledge through the medium of English, while at the same time, if the students had more content knowledge, they might be better able to understand discussions of content in English and so extend their content knowledge. Since, however, the students lack both the necessary level of English and the necessary content knowledge, students (and instructors) face a very challenging situation. If this depiction of

the situation is accurate, it could be remedied either by requiring a higher level of English or by requiring better content knowledge before EMI courses can be taken. There seemed, though, to be a feeling among these instructors that the latter path should be pursued: that is, students should acquire better knowledge of their subject through classes taught in Japanese as a pre-requisite to taking EMI courses in their subject. Macaro (2018) points out how in the SLA literature there is considerable evidence for how prior knowledge of a topic affects comprehension. In making the above comments, the EMI instructors seem to have picked up on this widely reported effect.

5. Discussion

The first purpose of the project reported in this paper was to identify the skills and abilities that are needed by students to take EMI courses within Kanazawa University. The questionnaire results provide several perspectives on this and it is useful to look at the intersection of the two multiple-choice questions in the questionnaire. As shown in Table 3, the ten tasks from the questionnaire were first divided into two groups on the basis of how many EMI courses involve each task, with the division between "many" and "few" being set at one third of the courses. They were then further divided based on how well instructors perceive that students can do each task, this division deriving from the proportion of "few problems" responses and "significant problems" responses. Combining the results in this way gives one perspective on how attention to these tasks should be prioritised in the EAP courses. It suggests that the tasks in the first row should be the upmost priority, the tasks in the second and third rows somewhat lesser priorities, while the tasks in the final row can perhaps be set aside.

The open-ended questionnaire items, meanwhile, give a slightly different picture of the skills and abilities required by students. For both open-ended questions, there were numerous comments concerning students' ability to express themselves in English, matching the multiple-choice data.

Table 3. Reported task usage and perceived difficulty of ten academic tasks

Task occurrence	Perceived difficulty	Task
Done in many EMI classes	Many problems	Writing essays/reports in English Engaging in discussions in English
	Few problems	Listening to lectures given in English Reading papers/book chapters/other written materials in English Watching videos that present content in English
Done in few EMI classes	Many problems	Writing summaries in English of reading materials Finding sources in English
	Few problems	Taking notes in English Giving presentations in English Synthesizing information from multiple sources written in English

There were also numerous comments about students' ability to understand content presented in English, with students' reading abilities appearing to be a particular concern. This contrasts with the multiple-choice data which suggested that students experience relatively few problems listening to lectures given in English, reading written materials in English or watching videos that present content in English. It is somewhat difficult to reconcile these differences, but it may be that since listening to lectures and reading materials in English are central tasks in EMI classrooms (as Table 2 indicated) even if these tasks are not the biggest challenges for students, they are nonetheless major concerns for EMI instructors.

To summarise the above, the tasks students taking EMI courses need to be able to do may be identified as:

- writing essays/reports in English;
- engaging in discussions in English;
- listening to lectures given in English; and
- reading papers/book chapters/other written materials in English.

There is some overlap between these findings and those reported earlier. Evans and Morrison (2011), Taguchi and Naganuma (2006) and Aizawa and Rose (2018) all found that students faced difficulties with various aspects of academic writing. Taguchi and Naganuma (2006) found that many students struggled with oral communication, while the lower proficiency students interviewed by Aizawa and Rose (2018) had problems participating in discussions. Listening to lectures in English was also reported as a challenge in all three of these studies. Finally, difficulties with reading were also highlighted by Evans and Morrison (2011), Taguchi and Naganuma (2006) and Aizawa and Rose (2018).

To what extent then do the current EAP courses at the university in question help students develop their skills and abilities in the four core tasks identified above? First, it should be noted that the tasks are not discrete. That is, some involve other tasks or are necessarily dependent on other tasks. For example, writing essays/reports likely involves finding sources, taking notes, writing summaries and synthesizing information from multiple sources. Taking notes in turn likely involves comprehending lectures or reading materials. It would, therefore, not be appropriate to confine the EAP courses simply to the four priorities listed above. Nevertheless, these four tasks may be considered the primary requirements for EMI courses, and below each task is considered in turn.

Writing essays/reports is a major focus of the current EAP courses. EAP IV culminates in the writing of a five-paragraph essay, and the whole course is designed to build towards this task. Students read two articles provided by their EAP instructor, write initial summaries of those articles, develop a thesis statement or research question, find one further source themselves and make use of all three sources in their essay. Along the way, they receive instruction on citations and referencing and on structuring an essay and the paragraphs within an essay. EAP III serves as preparation for EAP IV, focusing first on the writing of summaries of reading materials, with appropriate citations

and referencing, and then on the writing of an analytic response to two readings. These courses build in turn on EAP I which looks at the basics of paragraph writing and formatting academic work. The main limitation of the EAP courses with respect to writing essays/reports is that it is only possible for students to produce a single substantial piece of writing, this being either an argumentative essay or an expository essay depending on the instructor's choice. Ideally, it would be useful for students to gain experience of producing other genres of academic writing. However, given the very limited number of contact hours available for the EAP courses, the focus on a single type of writing is arguably appropriate.

Discussions in English have a less formalised and less prominent role in the EAP courses. The EAP courses are active learning courses in which students are expected to interact positively with each other to complete tasks and discuss ideas. However, although the language of instruction in the EAP courses is English, students are not necessarily required to use English as they work together. It is likely that in many EAP classes some discussion in English does take place, but until now this may have depended on individual teachers to some extent. Already, however, the EAP Course Management Committee has decided to place more emphasis on students' use of English from the 2019 academic year. For the first time, the extent to which a student makes an effort to use English in class will form one element in the participation grade given to students. However, given the concerns expressed by EMI instructors regarding students' ability to engage in discussions in English, it may be that the EAP courses should give attention in a more formal way to developing students' abilities in this area.

Similarly, listening to lectures given in English is not a formal component of the current EAP syllabi. Nevertheless, as the language of instruction in the EAP courses is English, students are required to listen as EAP teachers give instruction on various aspects of the courses. It is likely, however, that for the most part the focus in such moments is not on developing students' ability to listen to lectures in English but rather on the instructional content. Thus, while students may gain some experience in listening to lecture-style content, they most likely do not develop their skills in any formal way. Furthermore, the extent of this exposure to lecture-style content is unclear. It seems likely, though, that as a rule such lecture-style instruction in the EAP courses is relatively brief, while in EMI courses students are required to listen to more extended stretches of speech. It may therefore be beneficial for the EAP courses to move towards providing more formalised exposure to and development of lecture listening skills.

The final core task identified above for EMI courses, reading papers/book chapters/other written materials in English, is again not a formal goal of the EAP courses. However, in EAP III and EAP IV students are required to read academic materials. Specifically, in EAP III students read three readings 600–1,000 words in length and in EAP IV students read two readings 800–1,200 words in length plus one further reading of a similar length they find and select themselves. Moreover, since students have to write summaries and responses to these materials, they engage deeply with each text

through repeated readings and reflection on their content and import. In addition, students may engage in further reading tasks involving other texts, the above reading requirements being merely the minimums needed to complete the assignments for the courses. EAP instructors are encouraged to provide further reading materials to allow students to practice the summarising and analytical skills targeted in the courses. Nevertheless, the reading requirements of EMI courses are likely to be substantially greater, certainly in terms of the sheer amount of reading students have to do, but perhaps also in terms of the difficulty and nature of the reading materials, the majority of EAP instructors selecting materials drawn from online news sources rather than genuinely academic texts. There may therefore be a need to consider whether the EAP courses can provide further opportunities for students to develop their reading skills. At present, the EAP I and EAP II courses do not include an academic reading element and thus there may be an opportunity to provide more exposure to the reading of academic materials through the addition of a partial focus on content. Doing so might not only give more practice in academic reading for students but could also allow the subsequent EAP III and EAP IV courses to operate at a higher level, more closely approximating the demands of EMI courses.

6. Conclusion

This paper has reported on a questionnaire-based study that sought to understand the skills and abilities that Kanazawa University students need to take EMI courses. The responses of EMI instructors revealed four core tasks that students are required to develop: writing essays/reports in English, engaging in discussions in English, listening to lectures given in English and reading papers/book chapters/other written materials in English. Reflecting on the extent to which the EAP courses deal with these tasks, it was noted that writing essays/reports in English already receives a great deal of attention in the EAP courses, being the main focus of EAP IV while both EAP III and EAP I give attention to a variety of skills that are pre-requisites to essay writing. With respect to engaging in discussions in English and listening to lectures given in English, the EAP courses provide some practice in performing these tasks, but do not formally target them at present. It may therefore be necessary to consider whether and how the development of these skills can be better fostered by the EAP courses. In the case of reading written materials in English, this task is not formally an aim of the EAP courses, but the EAP III and EAP IV courses do nonetheless demand that students regularly engage in the reading of challenging materials. The question that remains is whether the EAP I and EAP II courses should also include an element of reading skills development.

The discussion in this paper of possible adjustments that should perhaps be made to the EAP curriculum is empirically based, but it must be borne in mind that the questionnaire data does have some limitations. First, it should be recalled that the responses of just 22 EMI instructors were analysed out of at least 116 instructors within the university who are engaged in EMI. Second, while there were responses from instructors belonging to a range of disciplines, there were no responses

from members of the College of Medical, Pharmaceutical and Health Sciences. Third, it should be noted that the responses that were received were from a self-selected group of informants. Those instructors who chose to respond to the questionnaire may perhaps have a particular interest in EMI instruction and the university's movement towards EMI (whether they are in agreement with it or otherwise) and so may not be representative of EMI instructors as a whole. Finally, and perhaps most importantly, this study has only explored teachers' perceptions of the challenges faced by students, and students' own views on their difficulties should also be explored. Given these limitations, it would not be appropriate to make radical changes to the EAP curriculum at this stage. Nevertheless, the questionnaire results can be considered as indicative of areas that the EAP Course Management Committee should reflect on and attend to going forward as it seeks to further develop and enhance the EAP curriculum.

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Appendix: The questionnaire

Please respond to the questions below in either English or Japanese.

以下の質問に英語または日本語でお答えください。

Background questions

1. What is your first language?

   あなたの第一言語は何ですか。

2. What is the title of your EMI course? (Note: If you teach more than one EMI course, please answer the following questions with respect to the course which typically has the largest enrolment, since this course likely has the greatest impact on the student body.)

   EMI コース名を記入してください（複数の EMI コースを教えている場合、最も多くの学生に影響を持つ、受講生数が最も多いクラスについて、以下の質問に回答してください）。

3. How many students typically enrol in your course?

   通常何名ほどの学生が登録しますか。

4. How many students typically complete the course (i.e. gain a passing grade)?

   通常何名ほどの学生が単位を取得しますか。

5. What do you see as the primary purpose of your course? (Please choose one.)

   授業の主要な目的を一つ選んでください。

   i. to improve students' language skills

      学生の言語スキルを向上する。

   ii. to improve students' academic skills

      学生の学術的なスキルを向上する。

   iii. to improve students' content knowledge

      学生の知識を向上する。

Primary questions

(Note: If you teach more than one EMI course, please answer the following questions with respect to the course which typically has the largest enrolment, since this course likely has the greatest impact on the student body.)

（複数の EMI コースを教えている場合、最も多くの学生に影響を持つ、受講生数が最も多いクラスについて、以下の質問に回答してください。）

1. Which of the following things do students need to do in your course? Please choose all options that apply.
   あなたの授業で受講生に求める活動・課題は次のうちどれですか。当てはまるものすべてを選んでください。

   Give presentations in English
   □　英語でプレゼンテーションを行う

   Engage in discussions in English
   □　英語で議論をする

   Listen to lectures given in English
   □　英語による講義を聞く

   Watch videos that present content in English
   □　英語による動画を見る

   Take notes in English
   □　英語でノートをとる

   Read papers/book chapters/other written materials in English
   □　英語による論文や本のチャプター、その他の資料を読む

   Write summaries in English of reading materials
   □　リーディング資料の要約を英語で書く

   Find sources in English
   □　英語で書かれた資料を探す

   Synthesize information from multiple sources written in English
   □　英語で書かれた複数の資料からの情報をまとめる

   Write essays/reports in English
   □　英語でエッセイやレポートを書く

   Other (please specify)
   □　その他（具体的に記入してください）

2. In general, how well are students enrolled in your course able to do these things? For items listed that students in your EMI course do not do, please select N/A.

通常、受講生は以下の活動をどの程度行うことが出来ますか。あなたの EMI コースで行わない項目については、「該当しない」を選んでください。

	N/A 該当しない	Few problems あまり問題はない	Some problems 多少の問題がある	Significant problems 大きな問題がある
Give presentations in English 英語でプレゼンテーションを行う	☐	☐	☐	☐
Engage in discussions in English 英語で議論をする	☐	☐	☐	☐
Listen to lectures given in English 英語による講義を聞く	☐	☐	☐	☐
Watch videos that present content in English 英語による動画を見る	☐	☐	☐	☐
Take notes in English 英語でノートをとる	☐	☐	☐	☐
Read papers/book chapters/other materials in English 英語による論文や本のチャプター、その他の資料を読む	☐	☐	☐	☐
Write summaries in English of reading materials リーディング資料の要約を英語で書く	☐	☐	☐	☐
Find sources in English 英語で書かれた資料を探す	☐	☐	☐	☐
Synthesize information from multiple sources written in English 英語で書かれた複数の資料からの情報をまとめる	☐	☐	☐	☐
Write essays/reports in English 英語でエッセイやレポートを書く	☐	☐	☐	☐
Other (please specify) その他（具体的に記入してください）	☐	☐	☐	☐

3. Do you feel unable to do certain things in your course because of limitations in students' skills/abilities? (e.g. Have you avoided giving a particular reading due to concern about whether students can understand it?) Please describe any problems of this nature.
    学生の英語のスキルや能力に限度があるため、授業で扱うことができないと感じる事柄はありますか（例　学生が理解できるかどうかを懸念して、リーディング資料を与えるのをやめたことがある）。この類の問題について記入してください。

4. Do you have any other comments about the skills and abilities that students require for EMI courses?
    EMI コースを受講するために学生が必要なスキルや能力について、ご意見がありましたら、記入してください。