JJCLIL

The Journal of the Japan CLIL Pedagogy Association (J-CLIL)

VOLUME 1. MARCH 2019

ISSUED BY J-CLIL ISSN 2434-7620

J-CLIL

The Journal of the Japan CLIL Pedagogy Association (J-CLIL): JJCLIL Vol. 1

ISSN (electronic): **2434-7620**

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Publisher: **The Japan CLIL Pedagogy Association (J-CLIL)**

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Toyo Eiwa University

Cover design: **Mark Kavanagh**

Publication Frequency: **Annually**

Publication Medium: **Electronic only**

Publication Website: **The J-CLIL Website (https://www.j-clil.com)**

Published Date: **March, 2019**

All research articles in this Journal have undergone rigorous peer review, based on initial editor screening and anonymized refereeing by three anonymous referees.

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CLIL Teacher Education

Foreword

For the things we have to learn before we can do them, we learn by doing them. — Aristotle

Learning by doing is a phrase that very much appeals to me. Over the past 40 years or more since I became a teacher I have often contemplated what learning and teaching is. I have experienced a lot of trial and error in order to understand the various theories of learning and teaching, but so far I have not found any other better approach than the notion of learning by doing. For me, CLIL (Content and Language Integrated Learning) is the most appropriate form of integrated learning that enables us to help change our mindsets towards language learning as well as learning itself in the Japanese context.

The Ministry of Education, Culture, Sports, Science and Technology (MEXT) has provided a foreign language (predominately English) as an optional (substantially required) subject in the secondary education curriculum for more than 70 years since world war II. Since then, the English language has been taught as the primary foreign language in the national curriculum, which we call 学習指導要領(*Gakushushidoyoryo*: the Course of Study). At long last in 2020, Japan will incorporate English as an official subject in primary education. I wonder whether this should be termed an epoch-making educational event or not. However, at almost the same time in the process of this discussion about how to start teaching English in primary education, CLIL has been gradually recognized by researchers and teachers in all educational levels in Japan. I hope CLIL can help alter the current Japanese tradition of a poorly implemented language learning culture and its often inward-looking society.

Our publication, the Journal of the Japan CLIL Pedagogy Association or JJCLIL, aims to support the activities and implementation of CLIL by CLIL practitioners who work within the Japanese context. I am really delighted to publish the first issue of JJCLIL and wish to express my thanks to the authors and editors of this volume who have contributed to the development of CLIL in Japan. I would also like to express my appreciation to all the people who have supported J-CLIL activities for the past two years.

I would like to take the opportunity within this foreword to give a brief history of J-CLIL. It was only four years ago that we started our research network that focused on CLIL pedagogy when I started to work at Toyo Eiwa University. It was the beginning of what we have today. Before that, some CLIL practitioners gathered and discussed CLIL pedagogy in several conferences, seminars and meetings, but there appeared to be many types and interpretations of CLIL in many different educational fields, even within the Japanese context. These were sometimes a mixture of just English conversational courses or classes

that focused on learning math or science in the medium of English with no background or framework in CLIL theory and practice. Although CLIL in itself should be diverse and flexible, I felt these interpretations of CLIL could be somewhat dangerous for the current and future roadmap of CLIL implementation in Japan, which will possibly find its way to develop better CLIL education in the Japanese context. We should create our own contextualized CLIL pedagogy

Four years ago in 2015, I talked with one of my colleagues, Katsuhiko Muto, who was then not a CLIL practitioner but interested in the dynamics at English immersion camps for children. I asked him to help me establish a research group of CLIL at Toyo Eiwa University. He agreed with this proposal and we started a research group called TE-CLIL ReN (the Toyo Eiwa CLIL Research Network) with the addition of some of our other colleagues. That was the first step for the creation of J-CLIL and its subsequent activities. While conducting these CLIL or CBLT research activities with my colleagues' support for a year, I strongly felt that a more powerful association would be necessary as more people wanted to study CLIL theory and practice in addition to participating in CLIL research and teaching. I therefore asked Makoto Ikeda, who had already started a CLIL curriculum at Sophia University and is also one of the leading CLIL researchers and teacher educators in Japan, to establish a CLIL pedagogy association. He agreed and together we started J-CLIL with the other founding members in April 2017. Our initial mission statement was:

> To study and promote practices for the implementation of integrated education called CLIL (Content and Language Integrated Learning) or CBLT (Content-based Language Teaching).

We first used the term CBLT as well, because there was some criticism against using the term CLIL exclusively among some researchers, so we included CBLT. I thought this was reasonable request because we are not just followers of CLIL, but seekers for better learning. I believe that CLIL is part of integrated education, which can encourage teachers, students and parents to build open-minded attitudes towards integrated language learning as well as to learning itself. I have therefore looked forward to practical development of CLIL methodology. In the past two years, the number of J-CLIL members has increased to more than 250. In this time, nobody has criticized the use of the term CLIL, so we may eventually omit the term CBLT at a later date.

Thanks to the 250 or more J-CLIL members, we have so far successfully planned and carried out the following: 1) CLIL study meetings; 2) CLIL seminars; 3) A CLIL journal publication; 4) Developed CLIL materials; 5) Created CLIL research networks; and 6) contributed to various activities to promote CLIL (CBLT) pedagogy. We have had 12 CLIL study or research meetings, two annual conferences and one seminar in Europe for the past two years.

In addition, some members have created CLIL materials and contributed to the current version of JJCLIL. Our members have developed individual or collaborative networks and, as reflected in this issue's 10 papers, the field of CLIL research and practice is diverse. So far, so good. However, nobody knows what will happen next.

J-CLIL is still an association run by volunteers and has no support from publishing companies and does not have the budget to publish a well-designed professional looking journal. Therefore the layout or design may be very rough around the edges. I hope you can forgive us for this hands-on approach for compiling JJCLIL.

This first issue of JJCLIL includes 10 papers complied by five editors and through this publication, and in the spirit of CLIL, we have had a learning-by-doing policy. We therefore look forward to your feedback on each article. JJCLIL is an open access online journal, which means everyone can read it and hopefully understand how CLIL is developing in Japan. We hope that the publication of this journal will help in the sharing of ideas with each other.

In addition to this issue of JJCLIL, I am also very happy to announce that JJCLIL will publish a special issue of JJCLIL: Proceedings from the J-CLIL TE Seminar at the University of Stirling, Scotland, in the UK. I hope you will also read that. It is also an open access online journal.

Let's study CLIL together by doing CLIL.

Shigeru Sasajima
President of J-CLIL

Editorial

In 2008 the *International CLIL Research Journal* (ICRJ, University of Jyväskylä) was published. It was the first periodical in the field of Content and Language Integrated Learning (CLIL). The editorial of the first issue which was written by Peeter Mehisto and Dieter Wolff over 10 years ago discusses the then growing interest in CLIL approaches both in Europe and non-European countries, especially Latin America and Asia. As if to prove it, CLIL researchers in Colombia launched the *Latin American Journal of Content and Language Integrated Learning* (LACLIL, Universidad de La Sabana) in the same year, welcoming some European CLIL scholars to their scientific board. In 2012, CLIL practitioners and educators in the Netherlands created the *CLIL Magazine*. This was followed by the recent 2018 addition of another CLIL journal from Europe, the *CLIL Journal of Innovation and Research in Plurilingual and Pluricultural Education* (CJ, Universitat Autònoma de Barcelona), which is compiled by CLIL researchers in Catalonia.
It is now our privilege to announce the commencement of the first CLIL journal in Asia, the *Journal of Japan CLIL Pedagogy Association* (JJCLIL).

This first volume of JJCLIL includes a wide range of themes in CLIL pedagogy research in all educational levels from primary to tertiary contexts in Japan. Based on the concept of cognitive discourse functions (CDFs, Dalton-Puffer, 2013), Hazuki Nakata explores how primary school children's acquisition of particular English structural patterns was developed through food chain themed CLIL lessons. Similarly, Kazuko Kashiwagi and Yumiko Kobayashi examine upper secondary students' development of procedural knowledge to produce target formulaic sequences (conditional forms) in a science CLIL classroom. They also compare student performance between a CLIL and non CLIL group.

Five articles of CLIL studies at tertiary level are contributed to this volume. Miyuki Yukita reports on a curriculum where World Heritage sites and children's picture book analysis were both taught using a CLIL approach that was implemented in an English class for students majoring in early childhood education. Akiko Tsuda conducted a needs analysis of a CLIL programme for prospective nutritionists by interviewing content and language teachers and observing their classrooms. Her study provides implications for designing CLIL programmes in the context of English for specific purposes. The article by Cameron Smith and Vick Ssali discusses the development of a culture and history of English-speaking countries CLIL course at their university. They highlight the challenges and concerns in implementing the programme, such as students' resistance to CLIL and the issue of L1 usage in the classroom. In terms of students' performance, Barry Kavanagh focuses on the improvement of students' academic writing skills through a CLIL-based intercultural communication course that helps to develop their cognitive academic language proficiency

(CALP), which is crucial in their postgraduate study at a later stage. Brian J. Birdsell's study analyses how metaphors observed in articles from economic newspapers and magazines can be developed into CLIL lessons for economics students and how such classes can raise students' awareness of metaphorical language use in the media.

Themes in CLIL teacher education are also discussed in three articles. Todd Enslen's work mediates between CLIL and English medium instruction (EMI), disseminating the 4C framework of CLIL at faculty development workshops for EMI teachers to improve their teaching skills and also to meet the demand for the internationalisation of Japanese universities. The study by Yukiko Ito and Hazuki Nakata addresses teacher perception of CLIL upon their completion of a CLIL lesson. Through interviews with teachers in primary and secondary schools, the authors suggest more collaboration among CLIL practitioners with different sets of expertise is needed. The last article by James Hall and Simon Townsend examines five student-teachers at a Japanese university who participated in a two-week teaching practicum in Thailand. Through designing and conducting CLIL-inspired lessons the paper describes how these student-teachers' created their own theory and practice of CLIL through the use of ePortfolios.

As reflected in this first volume, approaches to CLIL are flourishing within various Japanese contexts and educational settings. To help build on this momentum, JJCLIL will consistently aim to provide a platform for CLIL practitioners by providing further discussion of CLIL pedagogy and research in Japan and beyond.

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CLIL in Primary Education

Children's Form-Meaning Connections and Cognition through CLIL

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Abstract
The purpose of this research is to verify whether children aged 11–12 can acquire a working knowledge of English expressions (the ability to use the structure and pattern of an expression while confidently replacing vocabulary within the expression and the ability to independently create sentences) instead of simply repeating expressions learned through rote memorization. A working knowledge is defined as the ability to use the structure and pattern of an expression while confidently replacing vocabulary within the expression, as well as the ability to independently create sentences. Using the content and language integrated learning (CLIL) framework, we conducted classes with the food chain as the lesson content. As a result, the author concludes that children were able to both formulate and use the expression "*X* eats *Y*" and had understood the sentence patterns in context. Through listening to the same expression being repeated, the children became able to recognize a pattern in the sentence structure and were able to adapt the expression, using it to express their own thoughts by replacing *X* and *Y* with other vocabulary. The CLIL lesson aided the children's English comprehension.

Keywords：CLIL, Form-meaning connections, Thinking

1. Introduction
Many English lessons in elementary schools in N city, where the author worked in 2017 as a supervisor of a board of education, have been implemented in the city.

With English classes held only once a week, there is insufficient instruction time. Moreover, as the children have not yet received instruction in reading and writing the Latin alphabet, it is difficult and unrealistic to encourage children to avoid rewriting and learning expressions in kana.

How can children learn to use English expressions with ease with only limited instruction time? In response, the author explores whether English expressions can be easily acquired if those expressions parallel a scene represented by the expression, and whether the children

are using English while doing higher level thinking.

In the lesson, an environment was created to encourage higher level thinking while the children were practicing English expressions. In order to incorporate this "thinking", it was decided that the classes would be conducted within the content and language integrated learning (CLIL) framework. The contents of the lesson are summarized below, and the effectiveness of the lesson is explored by analyzing results of a listening test and a questionnaire given to the children.

2. Theoretical background to the study

2.1 The purpose of CLIL (Content Language Integrated Learning)

The phrase “Content language integrated learning (Content and Language Integrated Learning, hereafter CLIL)” was coined in 1994 by David Marsh (then at Finland Jyvaskyla University) to describe a teaching method. CLIL is a dual-focused, educational approach to language learning in which an additional language is used for the learning and teaching of both content and language (Coyle, Hood, & Marsh, 2010).

According to Sasajima (2011, p.1), CLIL does not involve merely taking a certain subject in a foreign language, rather it can help motivate children to discover and learn by themselves, a process that tends to be lacking in other language learning methods and one in which children may secondarily gain abilities for other learning.

2.2 “Thinking” as defined by CLIL

Within the framework of CLIL that was used for this research lesson, “thinking” is described as it is defined in *Bloom’s Taxonomy* (Bloom, 1956) later revised in 2001 by Anderson and Krathwohl. Characteristics of thinking are “remembering,” “understanding,” “applying,” “analyzing,” “evaluating,” and “creating.” CLIL further divides these characteristics into two types: higher order thinking skills (HOTS) and lower order thinking skills (LOTS).

HOTS is deep learning that combines learning content with existing knowledge and experience as well as critical thinking. LOTS is superficial learning centered on memorization and understanding. These are further organized by Ikeda (2016: 13), and shown in Figure 1. Considering the HOTS and LOTS classification, activities that are not burdensome to children can be carried out if curriculum and teaching materials are developed according to the children’s developmental stage. In particular, HOTS involves the ability to think about and make judgments on complex issues when there is more than one correct answer, the ability to make judgments, and the ability to develop a new way of thinking. All of those are necessary from the viewpoint of future sustainability and sustainable development.

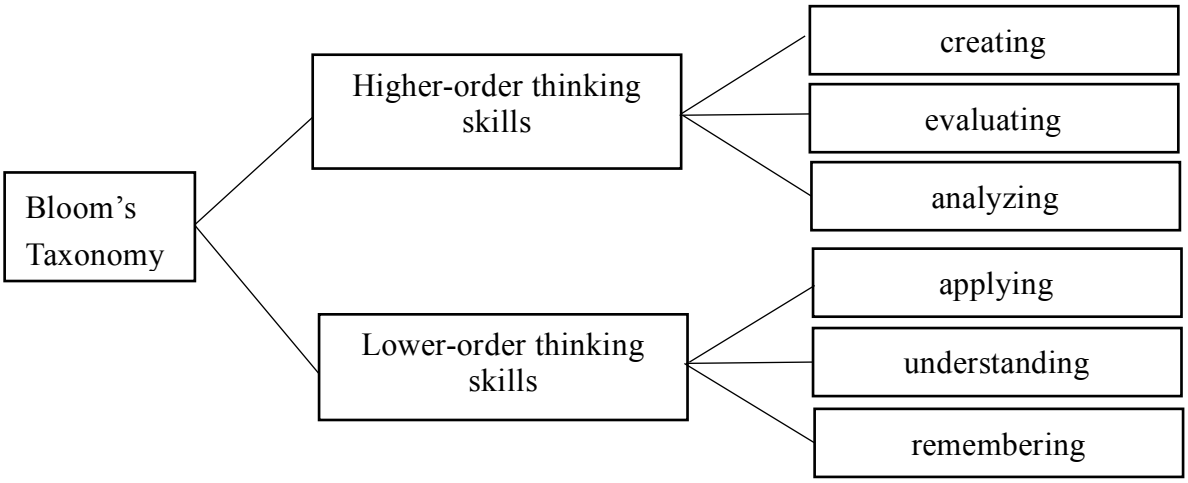


Figure 1. Bloom's Taxonomy (Anderson & Krathwohl, 2001: 31, modified from Ikeda, 2016: 13)

In addition to foreign language education, the "thinking" classified in HOTS and LOTS using the CLIL framework can also be incorporated into all subjects as a means of learning. How can we evaluate whether children are thinking or not and to what degree they are thinking be evaluated?

Here, the cognitive discourse functions (CDFs) proposed by Dalton-Puffer (2013) are used to illustrate what is happening during "thinking.". The CDFs are divided into seven independent functions: Classify, Define, Describe, Evaluate, Explain, Explore and Report. Table 1 details each function's content.

Table 1. Construct of Cognitive Discourse Functions (Adapted from Dalton-Puffer, 2013)

F1 CLASSIFY	Classify, compare, contrast, match, structure, categorize, include
F2 DEFINE	Define, identify, characterize
F3 DESCRIBE	Describe, label, identify, name, specify
F4 EVALUATE	Evaluate, judge, argue, justify, take a stance, critique, comment, reflect
F5 EXPLAIN	Explain, reason, express cause/effect, draw conclusions, deduce
F6 EXPLORE	Explore, hypothesize, speculate, predict, guess, estimate, simulate
F7 REPORT	Report, inform, recount, narrate, present, summarize, relate

Based on Table 1, creating lessons using the CLIL framework seems to be effective when children willingly work while thinking critically, work in cooperation with their peers, deliberately ask abstract questions that do not have just one correct answer, make value

judgments, and produce new ways of thinking is seen to be effective.

2.3 The Relationship Between Second-Language Acquisition and CLIL

In order to learn a foreign language, it is necessary to take theory of second language learning into consideration. Ellis (1997) states that "input" is important for language learning (Ellis, 1997).

The importance of input (Krashen, 1982, 1985) is described by many second language acquisition theory researchers (Ellis, 1990, 1994; Gass, 1997; Sharwood, 1986; VanPatten, 1996). The learner's attention is directed toward input, placing importance on the process of linking foreign language meaning with sentence structure (VanPatten, Williams, Rott, & Overstreet, 2004). This cognitive process of connecting voice content in English with semantic content is termed form-meaning connections (FMCs). When learners approach a new language, they connect meaning and sentence structure. However, learning a foreign language is not well facilitated unless the learner is aware of the sentence structure (language pattern) contained in the input (Schmidt, 1990).

Keeping in mind the importance of the learner being aware of sentence structure, the teacher's narrative (Teacher talk) can be said to be vital in a CLIL foreign language class. By allowing the child to repeatedly hear or consciously use the English target expression introduced in the teacher's narrative, the child will come to notice the language pattern. Japanese EFL (English as a foreign language) learners, especially beginner learners, usually have few opportunities to hear English. However, looking at the results of a picture connection test, "Even in beginner learners, verb phrases in speech form succeed to a certain extent" (Kashiwagi, 2012).

Language learners can use the CLIL 4C framework (content, communication, cognition, and culture) to intentionally incorporate activities that connect English expressions with semantic content. They will notice sentence structure and, instead memorizing and parroting expressions, can utilize prepared teaching materials that allow them the freedom to change and replace vocabulary in sentences. It is thought that through imitating and repeating English expressions while noticing sentence structure, the ability to replace parts of sentences or phrases supports language productivity (Ellis and Lasen-Freeman, 2009).

3. Purpose of the Study

The purpose of this research is to verify whether children aged 11–12 can acquire a working knowledge of English expressions instead of simply repeating expressions learned through rote memorization. A working knowledge is defined as the ability to use the structure and pattern of an expression while confidently replacing vocabulary within the expression, as well as the ability to independently create sentences. The research purpose is explained as:

(1) through utilizing input in which sentence structure and possible word replacements can be noticed, clarify whether children can smoothly produce English expressions and (2) within the framework of CLIL, verify whether children are thinking while listening to English expressions.

4. Outline of the Research Practice

A two-hour practice class was conducted once a week for two weeks (for a total of two units) in November of 2015 using sixth grade science food chain lesson content. The lesson is described in Table 2. In this lesson, the relationship between *eats* and *is eaten* is expressed as *X* eats *Y*. Table 3 shows the breakdown of the lesson into CLIL's 4 C's. Initiatives at hourly intervals are set in (1) to (6), and the contents of each are described in detail. In Table 4, initiatives at hourly intervals are set in (1) to (6), and the contents of each are described in detail.

Table 2. Unit Plan

Unit 1	Using "*X* eats *Y*.", create a food chain diagram.	Worksheet
Unit 2	Learn about the food chain of land and sea animals that are familiar to children.	Listening quizzes Post-lesson survey (n=127)

Table 3. 4C Classification

Content	Communication	Cognition	Culture
food chain	*X* eats *Y*. Who eats what? What's A in English?	Food chain chart creation.	Nature in Canada Relationship with children's own lives.

Table 4. Lesson plan of the first unit (two units in all)

	Content of lesson	Method of verification
(1)	Teacher's (author) self-introduction.	
(2)	Look at the pictures of animals native to the Rocky Mountains.	
(3)	[Teacher talk] Learn about food eaten by animals introduced in step (2). Learn about their relationship regarding the food chain.	
(4)	Listen to the passage in English read by a native English teacher. The topic is about the relationship between "producer organisms" and "apex predators" .	Sound dictation "Dictogloss" (Wajnryb, 1990)
(5)	Create a food chain chart using picture cards.	
(6)	Make a food chain diagram, then display and present it.	Worksheet

Table 5. Lesson plan of the second unit (two units in all)

	Content of lesson	Method of verification
(1)	Have children notice the plural form the sound (e.g., monkeys)	
(2)	Listening quiz	Listening quizzes.
(3)	Think about the relationship between "producer organisms" and "apex predators".	
(4)	Reading of the picture book "*Who Eats What*?" (Lauber and Keller, 1994).	
(5)	Listen to "Teacher talk" on the relationship between the food chain and children's own lives.	
(6)	Reflect the lesson	Questionnaire survey

5. Research Method

The research participants were 127 sixth-graders of two public elementary schools (A school and B school) in N city. Since 2005, children in N city have been receiving the following instruction per year in foreign languages: 10 hours in lower grades, 20 hours in middle grades and 35 hours of instruction in upper grades. These two elementary schools were in the same junior high school district and were designated as city research schools for 2015. Students are taught phonemic recognition and speaking, and have experience in project-oriented foreign language activities and CLIL activities involving foreign languages. When this research was conducted, the children had received a total of 103 hours of foreign language (English) instruction.

Instruction is usually taught by the homeroom teacher, with a NET teaching about eight times a year. The research verification method consists of two points: (1) observing the utterances and the expressions used by the children in the class and (2) conducting listening quizzes with the children (ten questions in total; see Figures 2 and 3). The quiz was made up of ten comprehension questions: five questions related to language (form-meaning connections, hereafter FMCs) and five questions relate to lesson content (one of the CLIL 4Cs). In the FMCs area of the quiz, the children listened to a recording of a native speaker to connect sound with meaning. To clarify whether the children were thinking about meaning while listening to the English expression "*X* eats *Y*" (for example "A wolf eats a rabbit"), children indicated which animal ate which by drawing a line connecting pictures of animals on the left side of the worksheet to animals on the right.

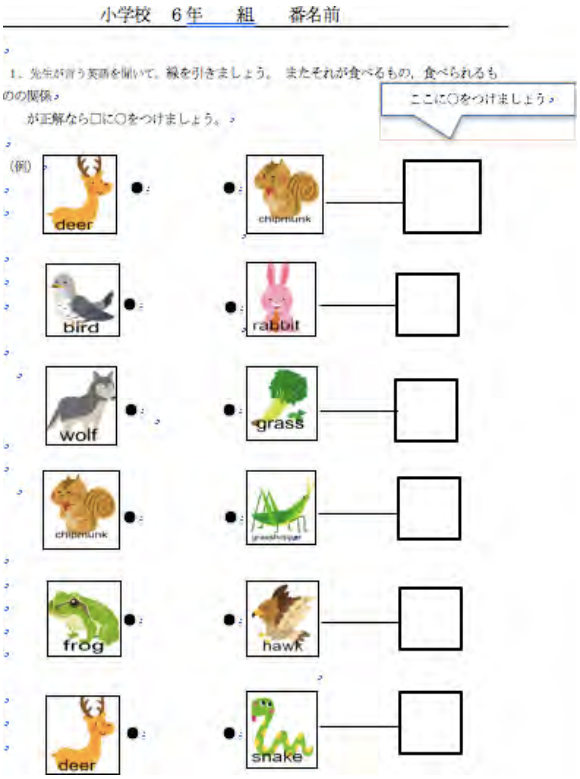
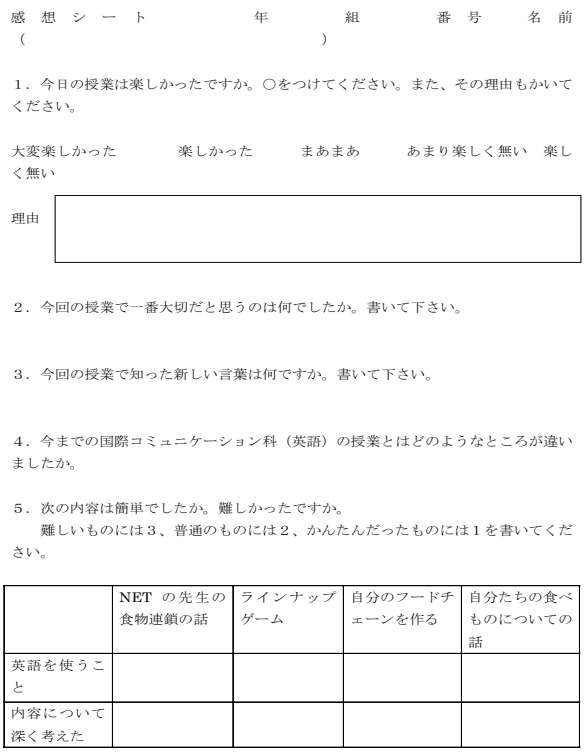


Figure 2. Listening Quiz



感　想　シ　ー　ト　　年　　組　　番　号　　名　前
（　　）

1．今日の授業は楽しかったですか。○をつけてください。また、その理由もかいてください。

大変楽しかった　　楽しかった　　まあまあ　　あまり楽しく無い　楽しく無い

理由

2．今回の授業で一番大切だと思うのは何でしたか。書いて下さい。

3．今回の授業で知った新しい言葉は何ですか。書いて下さい。

4．今までの国際コミュニケーション科（英語）の授業とはどのようなところが違いましたか。

5．次の内容は簡単でしたか。難しかったですか。
　難しいものには３、普通のものには２、かんたんだったものには１を書いてください。

	NET の先生の食物連鎖の話	ラインナップゲーム	自分のフードチェーンを作る	自分たちの食べものについての話
英語を使うこと				
内容について深く考えた				

Figure 3. Questionnaire Survey

Each question was repeated twice with about a two-second interval. Correct answers were marked with a ○ (circle). After giving the children practice questions at the beginning of the quiz and clarifying how to answer the questions on the worksheet, the recording was played. In the content questions (CDFs), whether the target expressions were included in the children's utterances was confirmed within the context of the seven functions.

This study took full measure to protect the privacy and the interest of the children involved in the study. Information from the listening quizzes and surveys were recorded, and the use of research data for any other purpose than research was banned.

6. Research Results

6.1 The Production of Smooth English Expressions

The NET led an activity using picture cards with a food chain theme based on animals in the Canadian Rocky Mountains to encourage the children to repeat the expression "*X* eats *Y*." Then a sound-dictogloss dictation activity (Wajnryb, 1990) was conducted. Listening to the expression *"A wolf eats a rabbit."*, children arranged picture cards accordingly. After that, they created their own food chain diagrams by arranging picture cards side by side (Figure 4).

Figure 4. The food chain diagrams

The diagrams were made by arranging picture cards side by side. In regular language classes, children usually practice speaking during presentation activities, however, that did not happen in this research. Children were allowed to speak while making their diagrams and/or during the sound-dictogloss activity, resulting in many children murmuring the expression "X eats Y."

6.2 Clarifying whether children are thinking while listening

Table 6 shows the results of the 10 questions; Five points were given for both FMCs (language) and Content (4Cs), for a final score of 0–10 . The figure also shows the value of both FMCs (SD = 0.78, maximum value: 5, minimum value: 2) and Content (SD = 1.17, maximum value: 5, minimum value: 0).

Table 6. Descriptive Statistics of the Listening Quiz

	n	Mean	SD	Min	Max
A: FMCs (connection between audio format and meaning)	127	4.68	0.78	2	5
B: Content	127	4.11	1.17	0	5
A+B	127	8.79	1.56	2	10

In order to see whether children are thinking while listening to English expressions, the correlation between FMCs and Content scores was analyzed using Pearson's correlation coefficient ($r = .25$ $df = 126$, ** $p < .01$); and a weak correlation was seen (Table 7).

In the listening test, the recording of the NET reading the English passage was played twice. After listening, children had two seconds to answer. Considering the results, the author speculates that children were thinking while listening.

Table 7. Correlation between FMCs and Content

	FMCs	Content
FMCs	-	.25**
Content		-

n=127 **p< .01 *df*=126

Table 8. Degree of enjoyment and degree of difficulty, Top Scoring and Low Scoring Tasks

	N	Motivation 1-5	Teacher talk 1-3	FMCs 1-3
Overall result	127	3.87(0.72)	1.99(0.70)	2.22(0.70)
Upper-group	109	3.86(0.69)	2.02(0.70)	2.26(0.67)
Lower-group	18	4.00(0.77)	1.83(0.71)	2.00(0.84)

Regarding questionnaire items, the five questionnaire items related to motivation were expressed by a value of 1 to 5, and the responses regarding Teacher Talk and FMCs were expressed by a value of 1 to 3 (Table 8). There was almost no difference in the motivation of children who were good at English and those who were not. It was seen, however, that children who were not good at English experienced more enjoyment out of the lesson. Although there were some differences regarding Teacher talk and FMCs, notable differences were not observed. From the results, there was no difference in the degree of enjoyment and the perceived level of difficulty in each CLIL task according to the children's English ability. This means that even children who find English difficult managed to participate in classes using pre-learned lesson content and background knowledge. The CLIL lessons motivated learners and drew out children's willingness to learn by themselves.

6.3 Using the framework of CLIL and clarifying whether children were thinking while listening to English expressions with matching scenes and contents

During the sound-dictogloss activity, the first time the children listened to the expression *"X* eats *Y."*, they were to arrange the cards according to what they heard. At that time, some children were observed noticing that the vocabulary they heard (and thus the cards they were arranging) was contrary to the nature of the food chain. The second time they listened, if the expression was correct according to the food chain, the children were to lay the cards down on their right. If the expression was contrary to the food chain, the cards were put to the left. During this part of the activity the children could consult each other in groups. From this, it

seemed that the children were not just listening to the recording but thinking about the content while listening. The following is a transcript of the impression column provided on the questionnaire survey:

- “It was fun to be able to use what I learned in other classes and say it in English.”
- “I thought that I was able to make use of what I learned because I learned about the food chain in science.”
- “It was easy to understand because I followed the science of the food chain.”
- “I learned it in science, but it was actually difficult to make connections while thinking.”
- “I was glad that I could use the lessons learned from science in English and I learned the names of even more animals in English.”
- “It was a little difficult, but it was fun, it was difficult to think about what the animals would eat.”
- “It was fun to think about the food chain.”

First, because the lesson included content already learned in science, children felt “it was easy to understand” and “I made use of what I had learned.” They were satisfied with their English ability that was developed during the class. Second, as there were many children who mentioned “thinking,” it can be said that the children were thinking while doing the activity. Furthermore, the "classify", "compare", "match", and "categorize" of the CDFs framework were apparent. Analytical words (classified as HOTS) frequently appeared in children’s impressions. This suggests that high-level thinking is occurring in children.

7. Considerations

The author created two CLIL lessons in which children used expressions in English while thinking critically. In addition, using the CLIL framework the lessons encouraged children to practice English expressions by substituting words and creating their own sentences, instead of just parroting what they have memorized. In the lesson, the children listened to English expressions and matched scene and content. The author verified whether the children were thinking while listening. The purpose of the study was to (1) utilize input in which sentence structure and word replacements in the sentence can be noticed and whether children can smoothly produce English expressions and (2) within the framework of CLIL, listen to the English expression that matches the scene and content and verify whether the child is thinking while listening. Regarding (1), by repeating the target sentence introduced through Teacher Talk “X eats Y” and understanding the content, children were able to advance to using different words for the animals represented by *X* and *Y*. and understanding the content, children were able to advance to using different words for the animals represented by *X* and *Y*. Regarding (2), various tasks conducted in CLIL simultaneously deepened understanding and thinking of semantic contents in activities such as Teacher talk and sound-dictogloss. Children were observed thinking about connecting sound and meaning content, and further matching the contents of "the food chain". It was seen that the

learning content helped English understanding, and English also helped deepen understanding of the learning content.

Furthermore, the use of previously learned subject content was often mentioned by children in the questionnaire survey, and comments relating to “classify”, “compare”, “match”, “categorize” from the CDFs framework were also seen.

8. Conclusion

The author conducted classes using the CLIL framework to explore whether children can acquire more sophisticated working knowledge of English expressions rather than relying on memorizing material. The CLIL framework was utilized for children to make form-meaning connections (FMCs). For that purpose, an environment in which children can use English expressions and express meaning was created.

The results of the interview quizzes and the questionnaire survey conducted post-lesson were analyzed and described. Children were able to listen to the target sentence repeatedly through Teacher talk and think while listening during the sound-dictogloss activity, by connecting voice with content meaning. This is apparent looking at the results of the listening test. The following is an example from the questionnaire survey: “While preparing a food chain diagram in the class, I found that I can say the English expression by swapping words in the target sentence.”

In addition, words corresponding to CDF’s, “classify”, “compare”, “match” and “categorize (classification)” were seen in the children’s impressions.

In conclusion, it can be said that children were able to use English, connect English sound and meaning while thinking, and acquired English expressions without drilling and repetition practice. Furthermore, from the questionnaire survey, it was found that children voluntarily worked with a positive attitude during the CLIL lesson. This study proved that “The CLIL approach supports the willingness to learn by themselves when they tend to lack language abilities” (Sasajima, 2011:11).

9. Limits of research

A limit of this research lies in the scientific method: it was not possible to do the practice lesson with both an experiment group and a control group in order to clearly analyze the effect of input through Teacher Talk.

10. Future Research

When teaching content in English, two concerns are raised: firstly, the ability of the instructor (homeroom teacher) to operate in English, and secondly, as it takes considerable

time to create teaching materials, it is difficult to actually practice CLIL lessons in elementary school.

However, by utilizing content already studied, it is seen that CLIL can improve motivation in children and is effective in creating an environment conducive to thinking. In the future, it is hoped that English classes be developed in which expressions and scenes match and qualitative analysis can be conducted to study the way children think.

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CLIL in Secondary Education

Science in CLIL in a Japanese Upper Secondary School: Focusing on Increasing Procedural Knowledge with a Usage-based Model Perspective

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Abstract
This research investigates the extent to which teaching science classes in English while utilizing CLIL affects the progress of English proficiency in the students' relation of procedural knowledge. The theoretical framework is based on the concept of the Usage-Based Model (UBM), which enables learners to create production rules by finding and generalizing repeated experiences, thus developing their procedural knowledge. The class examined in the study explored the scientific topic of refraction, allowing for a focus on specific grammatical features (e.g., *if I had ---ed a X*; 3rd conditional sentences). The participants (aged 17) were expected to borrow and generalize formulaic sequences (FS) from the input. The CLIL group was instructed based on the UBM (N=78), whereas the non-CLIL group was instructed using explicit grammar instruction (N=72). To measure the students' procedural knowledge, grammaticality judgement tests and timed writing exercises were used. The post-test revealed significant differences between groups (t [148] =-3.69; $^{**}p$=.0003; d=.77, large) and showed that the CLIL group frequently used verb object phrases and borrowed FS. The students retrieved and internalized exemplars, and developed both grammatical sensitivity and English-language cognitive capacity.

Keywords: CLIL, Science, Usage-based Model (UBM), Focus on Form, Cognitive Discourse Functions

1. Introduction

Recent studies identified multiple benefits of the use of Content and Language Integrated Learning (CLIL) for L2 instruction, showing that CLIL improves overall language ability, critical thinking skills, argumentation, acquisition of subject-specific languages, morphosyntactic structures, and writing accuracy (Dalton-Puffer, 2007; Dalton-Puffer, Nikula & Smit, 2010). In CLIL classes, regarding improvement of L2 learning, the language structures are often provided as scaffoldings such as using language frames and borrowing

good sentence patterns from the authentic context. CLIL students are expected to be ready-to-use chunks of language (Dale,van der Es, and Tanner, 2011, p.134). In this meaning, we can assume that CLIL is thoroughly compatible with the Usage-based Model (UBM[1]) and with focus on form (FonF) instruction. CLIL has a dual focus on both language and content; however, when implementing CLIL in an English as a foreign language (EFL) classroom, educators in Japan might need to apprehend how L2 learners listen to English, observe linguistic patterns, and borrow exemplars for impromptu production while using language in an authentic context to accomplish real goals. However, the consideration necessary for language mastery in L2 beginners has not been further developed since the early implementation in Europe two decades ago. Bovellan (2014) points out, based on interviews with 13 CLIL teachers in Finland, that it is not easy for teachers to make children pay attention not only to subject content but also to linguistic features. Some teachers spend too much time emphasizing words and sentence structures or explaining to them in the mother language, while others simply let students be exposed to the teacher's input. Bovellan (2014) attempts to introduce some possible solutions for this, such as 1) simplifying language, 2) choosing synonyms, 3) accompanying talk with gestures and visual materials, and 4) using certain speech patterns (e.g., *Xs were ---ed by a Y*). When CLIL teachers exclusively focus on content and meaning, learners tend to be unsuccessful in developing English. Research in response to this suggests that FonF and the integration of CLIL deserve further attention (Costa, 2012; Dalton-Puffer, 2007). Key potential solutions, as stated by Dalton-Puffer (2007), include FonF, focus on meaning, interaction within the class, teacher knowledge, and scaffolding—all aimed at improving CLIL learners' grammaticalization. In addition, from the perspective of the UBM, it is considered crucial that input be enhanced, with increased token and type frequency of input (Ellis, 2008). These discussions propose a clear emphasis on form in content-driven learning contests, as well as a need for learners to be exposed to tasks that require them to focus on problematic grammatical forms and apply what they learn to meaningful situations (Swain, 2000). Ikeda (2013) found significant improvement in English proficiency among students in a CLIL geography class at a Japanese secondary school, especially regarding "fluency (the number of words they can write in a certain amount of time) and complexity (the variation of word types they can use in a limited length of time)" (p.40). Overarchingly, CLIL that uses UBM concepts may greatly impact learners' grammaticalization by developing procedural knowledge; however, this needs to be further discussed and explored.

As the Usage-based Model (UBM[1]) proposes (Bybee, 2008; Ellis & Larsen-Freeman, 2009; Tomasello, 2003), the process of learning a foreign language (L2) needs to shift from "practice makes perfect" or "rule to instance" instruction to "instance to rule" instruction (Anderson, 1993). Rule to instance instruction teaches grammar rules first, and learners start to practice speaking and writing later. By contrast, in instance to rule instruction, learners accumulate experience engaging with the language and begin noticing linguistic patterns,

which are then integrated into content and cognitive processing. This latter approach involves formulaic sequences (FS) and improves learners' procedural knowledge[2], enabling learners to create production rules by finding and generalizing repeated experiences that offer more exemplars (Anderson, 1993). In other words, learners develop their performative skills through the retrieval of exemplars, also called language frames or chunks. This type of knowledge contrasts with declarative knowledge[3]. The procedural knowledge of the target language is best learned through exemplars of language usage, which demonstrate form-meaning language connections. Regarding the UBM, Myles (2004) points out that L2 beginner learners should be encouraged to play with FS in the phase of grammar building; at more advanced levels, this will facilitate input processing through a built-up stock of FS. "Chunks do not become discarded: they remain grammatically advanced until the grammar catches up" (Myles, 2004, p. 159). Language chunks comprise minimum cognitive units and can be transferred to later learning stages to strengthen students' overall grammatical sensitivity, particularly to morphosyntactic structures (Ellis, 2012; Ellis & Larsen-Freeman, 2009; Kashiwagi & Ito, 2017). The present study does not dismiss the explicit teaching of grammar, but instead suggests that grammar is best taught as learners seek to clarify the mechanisms of the patterns they hear and find inductively as they use language.

Such language learning practices must incorporate rich content that engages learners and improves their competency to collaborate with one another in today's globalized society (Kashiwagi & Tomecsek, 2015). Academic content in CLIL embraces naturally specialized research areas, mutual understanding of complex concepts, and solutions to problems. In particular, science instruction utilizing CLIL may play an essential role in creating a new system. The CLIL framework interweaves content and language instruction to emphasize proficiency in authentic language use (Coyle, Hood, & Marsh, 2010). The CLIL framework has four principles, known as the four Cs—content (subject matter), communication (language), cognition (cognitive skill), and culture/community (Coyle et al., 2010)—aimed at improving learners' proficiency in the target language and fostering positive attitudes toward communication. Therefore, the current study would claim that both the UBM and CLIL call upon learners to tap their preexisting knowledge, perspectives, skills, and strategies. Furthermore, these models aim at promoting procedural knowledge and encourage learners to categorize concepts based on accumulated experience. These models are the realization of the spiral of language progressions, and show a strong connection and reciprocal relationship (Snow, Met & Genesee, 1989).

2. Theoretical background to the study

2. 1. Formulaic sequences

The present study was grounded in the concepts of the UBM and of FS, which originated in the study of mother tongue acquisition. Cognitive linguists (Goldberg, 1995; Langacker, 2000; Tomasello, 1998) have advanced the UBM, which holds that abstract grammar emerges from language use in mother language acquisition (Langacker, 2000). Tomasello (2003) defined this "mastery of all items and structures" as the item-based learning seen largely in L1 children's early language development. Noting that children imitate item-based expressions, he referred to exemplars in terms of the verb island hypothesis as isolated and mutually independent (e.g., *get sauce*, *get me up there*). Subsequently, children form a slot-filter category (e.g., *get X*). This cognitive procedure reflects the human processes of categorization and schema formation. Throughout the accumulation of item-based learning, category learning emerges, and learners begin to analyze slots and generalize structures across isolated patterns. These cognitive operations can be seen even in EFL classrooms (Eskildsen, 2012; Kashiwagi, 2012; Kashiwagi & Ito, 2017; Yamaoka, 2005). Regarding learners' categorization of language, Bybee (2008) divided input frequency into two types: token frequency and type frequency. Token frequency is "the frequency of particular items that entrench the comprehension and use of concrete pieces of language—item and phrase (collocation)," and type frequency is "the frequency of different actual forms occurring in the same language slot." Type frequency leads to the "categorization and analogy-forming of input and is crucial for determining the degree of productivity of constructions" (Bybee, 2008, pp. 218–221). The enhancement of shifting from token frequency into type frequency may represent the term of "structured input" (VanPatten & Cadierno, 1993). In a content-driven CLIL classroom, teachers can realize structured input in their teacher talk, encouraging learners to recognize patterns and form analogies.

In recent years, the idea of applying the extensive research on FS to L2 acquisition has attracted considerable interest. For instance, Eskildsen (2012) explores usage-based second language negation construction learning, finding that adult learners' learning of English (L2) negation constructions progresses from recurring expressions toward an increasingly schematic inventory of linguistic resources. Although the importance of learning FS has become widely acknowledged (Ellis, 2008; Ellis & Larsen-Freeman, 2009), both the quantity and quality of empirical research on FS in EFL classroom settings remains insufficient.

2.2. Procedural knowledge

FS have a positive impact on the development of procedural knowledge as opposed to declarative knowledge, providing a foundation for the practical use of English. Bybee (2008) suggests that procedural knowledge is "categorization" and analogy-forming, and is crucial to the production of constructions. It implies that the ability to construct categories and analogies, which indicates procedural knowledge, can be enhanced by accumulating a range of FS. More accumulation results in a wider range of noticing. In this context, Anderson (1993) and Anderson, Fincham, and Douglass (1997) defined Adaptive Control of Thought-Rational (ACT-R), a framework in which "production rules are created" by learners, who first find and experience the connection between antecedents and consequences in individual exemplars (as instances of these connections), then generalize them through repeated experiences with further exemplars (Anderson, 1993, p. 293).

2.3. Teaching grammar in CLIL

Prior to considering an effective teaching grammar in an EFL classroom, we summarize the studies focusing on meaning and form. In foreign language learning, the differences among the three approaches—focus on form, focus on form*s*, and focus on meaning—are defined as follows. The focus on form*s* approach refers to the presentation of discrete items of grammar, lexis, functions, and notions one at a time (Long, 1997). In other words, grammatical objects are taught from a separate, meaningful context. Such instruction may "largely ignore the language learning process" (Long & Robinson, 1998, p. 16). On the other hand, the focus on form (FonF) approach is an instructional method that addresses the connections among form, meaning, and function, drawing on experiences and enabling learners to pay attention to forms that expose them to meaningful content (Daughty and Williams, 1998). This approach is considered to be more suitable in CLIL, and this study aims to promote the use of FS within FonF to encourage pattern recognition in learners.

In CLIL, students learn the aspects of language that help them organize their thoughts and solve problems; linguistic frameworks necessary for categorization, analysis, and design. In other words, FonF allows students to learn grammar structures as well as increase knowledge about content. The teacher may support them with specific vocabulary or phrases (Dale, van der Es, & Tanner, 2011, p. 7). Our attempt in this study is to identify the extent to which Japanese learners might notice such linguistic patterns implicitly.

2.4 Subject-specific language use in CLIL

According to the FS-based language learning process described above, learners' cognitive operations seek to (a) accumulate FS, (b) analyze FS, (c) categorize FS, (d) find patterns across FS, and (e) apply generalized schemata for other occasions. This sequence can be defined as "instance to rule" (Kashiwagi, 2019).

The use of verbs in CLIL also plays an important role in language acquisition. CLIL tasks focus on connecting meanings to concepts, notions, facts, and skills within the content subject, where verbs and verb phrases occasionally outperformed regarding the subject (Llinares & Dalton-Puffer, 2015). As we described above, like "instance to rule," CLIL encourages learners to focus on the use of verbs, which lie in the central cognitive operation. As learners conduct and demonstrate experiments in the context of authentic language use, they are compelled to use verb-locative strings (e.g., *attached the sensors to the X; the sensors fell off the Y*). Dalton-Puffer (2016) proposed that the mapping of words onto actions and actions onto words is a central concern of linguistic pragmatics. Verschueren (1980) illustrated that lists of speech act verbs are important and hold grammatical behavior in a CLIL lesson. The structural, linguistic, and conceptual properties of practice take place. Nikula (2015) demonstrated that the discourse found in a chemistry lesson provided subject-specific formulations, topic-related vocabulary, and words for definitions. For instance, a science teacher unconsciously used the verb "measure" 37 times in one CLIL lesson. Learners hear and use verb phrases in various tenses while conducting science experiments, allowing for unconscious internalization of the target language. CLIL teachers should increase their focus on such subject-specific language and how it is best acquired.

The categories of verbs used in CLIL are considered to reflect learners' cognitive thinking and its variation dependent on the subject content. Dalton-Puffer (2016, 2013) proposes that the cognitive discourse functions (CDFs) defined in CLIL provide patterns and offer knowledge-oriented communication, patterns, and schemata of a discursive, lexical, and grammatical nature that facilitate dealing with standard situations where knowledge is constructed and made intersubjectively accessible. CDFs fall under seven categories: (1) classification, (2) definition, (3) description, (4) evaluation, (5) explanation, (6) exploration, and (7) reporting (Table 1).

Table 1. Seven CDF (seven cognitive discourse function) components

CLASSIFY	Classify, compare, contrast, match, structure, categories, subsume
DEFINE	Define, identify, characterize
DESCRIBE	Describe, label, identify, name, specify
EVALUATE	Evaluate, judge, argue, justify, take a stance, critique, recommend, comment, reflect, appreciate
EXPLANE	Explain, reason, express, cause/effect, draw, conclusions, deduce
EXPLORE	Explore, hypothesize, speculate, predict, guess, estimate, stimulate, take other perspectives
REPORT	Report, inform, recount, narrate, present, summarize, relate

(Adapted from Dalton-Puffer, 2016, p.33)

Each category reflects an internal structure that learners encounter in CLIL lessons, and the

perspective of CDFs may help us understand learners' subconscious cognitive language use. Krösss (2014, p. 83) investigated CLIL physics lessons by coding CDFs and "moves" (i.e., the occurrence of more structures within corresponding CDF types), finding that learners first utilize patterns, then engage with other functions. This process was especially prominent for the CDF categories of description and explanation, corresponding with the "instance to rule" sequence. Learners may become more conscious of both content and language where they are able to make analogies.

3. Purpose of the study

This study seeks to investigate the extent to which CLIL conducted in Japanese upper secondary education (1) improves students' procedural knowledge in L2 English and (2) improves cognition related to subject and content in L2 English writing.

4. Experiment

4.1 Participants

The participants were 150 second-graders in an upper secondary school (aged 17). They started learning English in elementary school at the age of 11. Their English proficiency ranged from *Eiken* grade pre-2 to 2-level, and several students had short-term study abroad experience. All students were enrolled in advanced levels of mathematics, science, and other subjects. Most students studied English rigorously in order to pass entrance exams; however, prior to the present study, they had little experience using English practically in the classroom, except practicing short skits in pairs. The students were divided into two groups. One of the authors, who is a Japanese teacher of English (JTE), implemented CLIL for one group through an experiment on the scientific concept of refraction (CLIL group, N=78). The same teacher also implemented a normal English lesson for a second group using a story on the topic of "hearing criticism secondhand" in the textbook (non-CLIL group, N=72). Before the study, the comparability of the two groups' English skills was statistically validated with an English achievement test. The study used a pre-test and post-test control group design.

4.2 Procedures

4.2.1 Lesson procedure

The lessons lasted eight hours in total. In both groups, the targeted grammar content was the 1st conditional and the 3rd conditional—which is ranked low in terms of morpheme acquisition for Japanese students (Izumi & Isahara, 2004)—focusing on morphosyntactic structure: "*If I ~, I will ~.*"; *"If I had X-ed ~, I could have X-ed ~.*" The analysis focused on the use of verbs and phrases in cognitive processing and as verb-locative strings in both the execution of the experiment and the discussion.

The target grammar had been taught using an English textbook half a year beforehand; however, the students of both groups were not proficient in utilizing the target grammar in context before the experiment. The CLIL group watched the teacher's demonstration of the science experiment, during which the teacher made a point to use the target grammar in English. The students used listening skills to hear the teacher talk, reading skills to search descriptions of science experiments through web resources, writing skills to take notes, and speaking skills to demonstrate learned scientific concepts (See Figure 1 and Photo 1). The language scaffoldings that were used once in front of the class throughout the lesson is detailed in Figure 1.

Operation in Science	Word Categories	Sentence Frames
 photo.1	a) subject-specific language: *refraction* *ray of light* *reflect* *surface* b)general words: *bend* *hit* *angle* *tranparent* c) conceptualization (chunks): *put X into Y* *X goes straight* *pass through X* *bend towards X*	**If I ---, it will---.** E.g.,If I put this pencil into water, the pencil will disappear. **If I had ---ed a X, it would (could) have---ed.** E.g.,If I had framed a hypothesis, I could have succeeded in this experiment.
Presentation		Sentence Frames
 photo.2		**If you---, you will---. If it---s X, it will be ---ed.** E.g., If you come closer to the front, you will discover the hint. E.g., If a ray of light hits the surface of X, light will be reflected. **If I had ---ed a X, it would (could) have---ed.** E.g., If we had made a hypothesis, we could have solved the problem.

Note. a)subject-specific language, b)general words, and c)conceptualization (chunks)were frequently focused in the lesson.

Figure 1. Language scaffoldings (sentence frames) used in the lesson

During the class, students in the CLIL group, using a science-based topic, attempted to do the experiments, they were given explicit grammar instruction through brief and inductive explanations and only when they struggled to express their thoughts. In contrast, the non-CLIL group, using the topic in the textbook, learned the same targeted grammar first through explicit explanation, then by reading and listening to passages, and finally by solving an

exercise and providing quick Q&A responses in pairs. As shown in Table 2, to observe the improvement in the students' procedural knowledge, pre- and post-timed grammaticality of judgement tests (GJTs) were conducted. To identify the extent to which the students activated subconscious cognitive language accompanied by cognitive operation on the subject content, students were also asked to write timed (10 min) essays in English about their impressions of the lesson.

Table 2. Lesson procedures, tests, writing essays

Phase	CLIL group (*N*=78)	Non-CLIL group (*N*=72)	Tests, Writing
1	Preparation	Preparation	Pre-questionnaires-8 min
	CLIL Demonstration	Introduction Grammar explanation	Pre- timed GJTs-15 min
2-7	CLIL lesson 1–6 Grammar explanation when necessary	Reading passages 1–6	1st-4th Timed essay-10 min
8	Reflection & Summary	Reflection & Summary	Post-questionnaires-8 min
	CLIL presentation	Q&A in pairs	Post- timed GJTs-15 min 5th timed essay-10 min

Note. Duration of each lesson = 50 min

Table 3. The students' tasks in the CLIL science class

Phase	The students' activities	4Cs	CDFs
1	To think of how the picture changes if it is put into water.	Content	Explore
2,3	To predict the answer and try to check their hypotheses by conducting experiments.	Content, Cognition	Explore
4	To think of why different answers appeared.	Content, Cognition	Classify
5,6	To explain the effects of refraction.	Communication (Group work)	Explain
7	To think of the things that rely on refraction in real society.	Communication (Group work)	Define Evaluate
8	To convey what kinds of things rely on refraction in their communities.	Community	Report

Note. Seven CDFs were placed in the third column.

The science lesson procedures for the CLIL group are shown in Table 3. The students who were in charge of teaching had classmates think about how a picture card changed when the students put it into water (content and cognition using the 3rd conditional). Then, before confirming or disconfirming the hypotheses on the card's change, the students discussed the answer in groups. Finally, the students tried to convey what kinds of things (e.g., microscopes, prisms, or optical fiber) rely on or demonstrate refraction. For instance, the students attempted to explain how an optical fiber transfers a message via light by drawing a figure showing an outer optical material reflecting light back into a core strand (See Figure 1 and Photo 2). Science in CLIL occasionally provides students with opportunities to use their new thoughts to benefit society.

4.2.2 GJTs for evaluating morphological structure

For assessing students' grammatical sensitivity (equivalent to procedural knowledge), this study used grammaticality judgement tests (GJTs) focusing on morphological structures as the target grammar, and the scores were analyzed quantitatively. In a GJTs, an examinee must intuitively judge whether a sentence is grammatically correct or incorrect in a limited time (a couple of seconds). If they judge that a sentence is incorrect, they must then write the corrected sentence, also in a limited time. Timed GJTs measure three principal processing operations: (a) semantic processing, (b) noticing, and (c) reflecting (corrections of errors). While (a) and (b) reflect the learner's procedural knowledge, (c) reflects the learner's declarative knowledge (Lowen, 2009). The present study used both test types, and the GJTs used are shown in Appendices A1 and A2. The test comprised a total of 21 sentences, including 16 GJTs (each with a score of 5; total score = 80) and 5 timed translations (each with a score of 4; total score = 20). The questions of the tests were elaborated to be fair for both groups, four of the science-based sentences and four of text-based sentences were equally employed. Other questions were ordinary ones seen in the English excises (See Appendix A1 and A2). 16 GJTs are scored only when the participants select "correct" or "incorrect" and rewrite it correctly. It can be said that the scores might reflect their improvement of both procedural knowledge and declarative knowledge. The scores of 5 timed translations, which needs both knowledges, might represent their impromptu productivity in a limited time. In the present study, this can be defined as the students' English proficiency in usage. The highest possible score was 100. Cronbach's α was used to assess the test's reliability, and the results were as follows: pre-test, α = .80 (good level); post-test 2, α = .82 (good level). Thus, the test was relatively reliable.

4.2.3 Timed essay for writing skills

To identify the extent to which the students activated subconscious cognitive language accompanied by cognitive operation on the subject content, this study used a timed essay test. Without using a dictionary, the students wrote their impressions and thoughts about the

lessons. To verify the students' quantitative change during the lessons, the authors developed a rubric with five standards to evaluate the students' essays, as shown in Table 4: (a) average number of words per sentence (procedural knowledge in FS and content), (b) total number of words in ten minutes (procedural knowledge in FS and content), (c) the appearance of verb-object phrases (VO phrases: patterns in grammatical structures in FSs, subject-specific languages, and knowledge construction), (d) total number of grammar errors (accuracy in FSs), and (e) meaningful sentences regarding the lesson content (meaning-making and cognitive thought).

Table 4. Rubric for evaluating the timed essays

Score	(a)	(b)	(c)	(d)	(e)
5	12 or more	60 or more	7 or more	0	7 or more
4	10,11	50–59	5,6	1,2	5,6
3	8,9	40–49	3,4	3,4	3,4
2	6,7	30–39	1,2	5,6	1,2
1	5 or fewer	29 or fewer	0	7 or more	0

To observe the students' cognition during the lessons, we extracted descriptions from the students' writing and identified the cognitive perspectives used in each phrase. To consider how scientific and general academic terminology is intertwined with language learning in CLIL lessons, we labelled the concepts based on CDF components (Table 1; Dalton-Puffers, 2016, 2013). The resulting components were used to categorize the students' cognitive operations.

5. Results and discussion

5.1 GJT results

The descriptive statistics of the results of the timed GJTs for both the CLIL group and the non-CLIL group are shown in Table 5.

Table 5. Descriptive statistics of timed GJTs

CLIL group (*N*=78) and non-CLIL group (*N*=72)								
	Pre-test				Post-test			
	M	SD	Min	Max	M	SD	Min	Max
CLIL group	52.08	12.77	25	75	70.27	15.64	28	95
Non-CLIL group	53	14.48	14	85	56.76	19.2	5	95

An unpaired *t*-test was used. SPSS version 21, produced by IBM, was employed. No significant difference between groups was found in the pre-test (CLIL group [*N*=78]: *mean*=52.08, *SD*=12.77; non-CLIL group [*N*=72]: *mean*=53, *SD*=14.48; *t*=.42, *p*>.05, *n.s.*).

However, as seen in Table 6 and Figure 2, the overall GJT scores improved significantly from pre-test to post-test (CLIL group [*N*=78]: *mean*=70.27, *SD*=15.64; non-CLIL group [*N*=72]: *mean*=56.76, *SD*=19.2, *t*=-3.69, **p*=.0003, *d*=.77, large effect size).

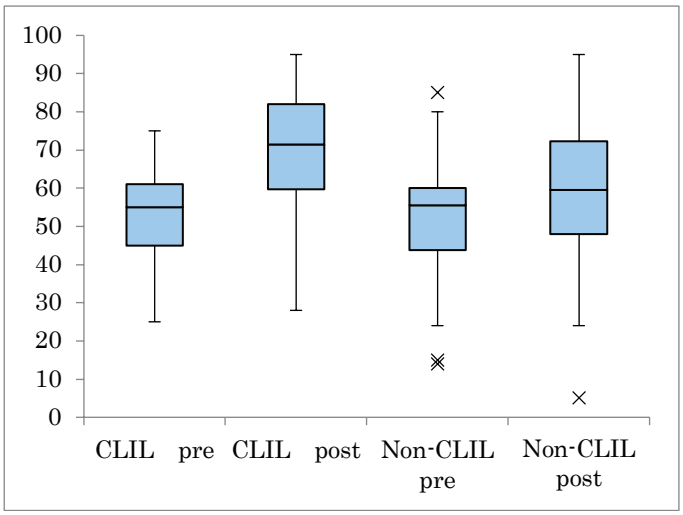

Figure 2. Graphic comparison of the CLIL group and the non-CLIL group

Table 6. Comparison of the CLIL group and the non-CLIL group using an unpaired *t*-test

CLIL group (*N*=78) and non-CLIL group (*N*=72)

	Pre-test		Post-test		
CLIL group and	*t-value*	*p-value*	*t-value*	*p-value*	*d*
Non-CLIL group	.42	.68 n.s.	-3.69	.0003**	.77 Large

Note. *$p<.05$, **$p<.01$, *d*: effect size unpaired *t*-test

The CLIL group showed higher scores than the non-CLIL group, and the non-CLIL group exhibited a widely scattered standard deviation (*SD*=19.2), meaning that the lower proficiency students did not learn the targeted structures. It can be inferred that the procedures used in the CLIL lessons had a positive influence on the students' English achievement with respect to both ~~to~~ judging correctness and incorrectness in the limited available time and to grammatical sensitivity to linguistic patterns. The study affected the learners' procedural knowledge significantly.

5.2 Results of timed essays according to quantitative observation

The timed essays were analyzed using the rubric shown in Table 4. The inter-rater reliability between the two scoring teachers (a JTE and a visiting native English teacher) was 0.92 (Cronback's α). The scoring consistency was determined by referring to the rubric. The results for each standard between the CLIL group and the non-CLIL group for each rubric item are shown in Figures 3 to 7.

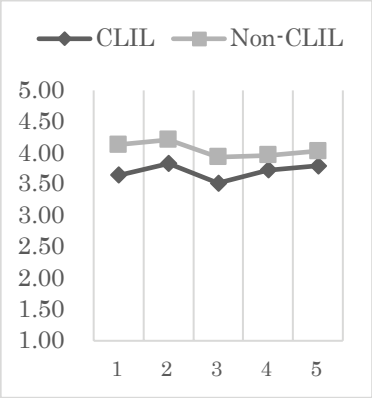

Figure 3. Number of words per sentence
X: times; Y: average score

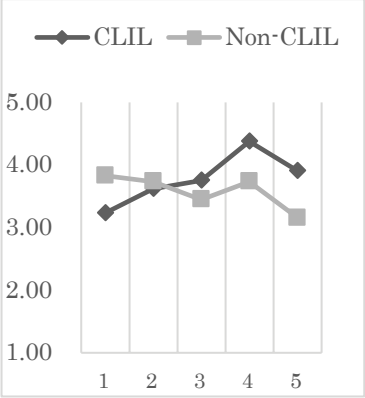

Figure 4. Total number of words
X: times; Y: average score

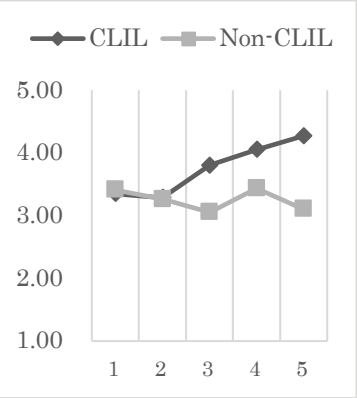

Figure 5. Number of VO phrases
X: times; Y: average score

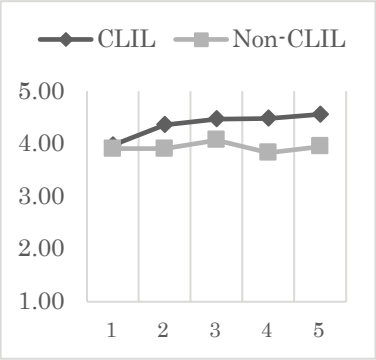

Figure 6. Accuracy based on number of errors
X: times; Y: average score

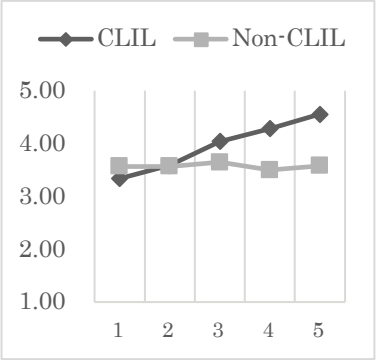

Figure 7. Meaningful sentences regarding content
X: times; Y: average score

As shown in Figure 3, the number of words per sentence increased in the CLIL group (representing fluency and FSs). The scores in the CLIL group were lower than those in the non-CLIL group; however, an upward tendency could still be seen in the CLIL group but not clearly in the non-CLIL group. We assume that the reason for this difference is that the CLIL group had plenty of opportunities to create presentations conveying experiment methodology, thereby acquiring scientific terminology.

As shown in Figure 4, the total number of words used increased in the CLIL group (representing fluency and FS). The number of words was also content-dependent. An upward tendency could be seen in the CLIL group. The score of the non-CLIL group decreased, and the students offered little commentary on the content. CLIL allowed the students to think and discuss the lesson with each other to create the presentation collaboratively.

In Figure 5, we see that the number of VO phrases (subject-specific languages and grammatical structures) clearly increased in the CLIL group. This may represent "[t]he

mapping of words onto action and action onto words [as] a central concern of linguistic pragmatics" (Dalton-Puffer, 2016). Using VO phrases frequently indicates the expansion of variation and reflects learners' productivity (Ninio, 1999; Tomasello, 1992). In science, students have numerous opportunities to describe and organize the world, explore phenomena, argue scientifically, and acknowledge earlier scientists (Polias, 2015). From an FS standpoint, when retrieving formulaic expressions, learners acquire prefabricated patterns and focus on meaning, and these actions connect with scientific concepts.

Figure 6 shows that accuracy based on number of errors (as shown in Table 4) increased in the CLIL group. This may suggest that the students' declarative knowledge also subconsciously improved. The reason why this happened in their science presentation can be explained that the students had been engaged in the content, exposed to the teacher's speech and encouraged to use targeted grammar implicitly when they wished to persuade their listeners or have their listeners guess what would happen next. In contrast, accuracy for the non-CLIL group did not increase because the students did not have sufficient opportunities to use their newly learned grammar in authentic use and there is less necessity of using it.

As shown in Figure 7, the number of meaningful sentences increased for the CLIL group. A graph shows the steady increase in sentence use from left to right. The CLIL group had a necessity to use CDFs (as described later on) and science terminology so that meaningful sentences are naturally used and it resulted in increased productivity.

5.3 Results of the timed essay according to qualitative observation

To apprehend the qualitative change of an individual improvement between groups, we will examine and compare examples from Student S from the CLIL group (mid-level; pre-test GJTs scores=61) and Student K from the non-CLIL group (mid-level, pre-test GJTs scored=60). The learners' English proficiency levels at the beginning phase were similar according to the GJT pre-test results (S:61; K:61) (See Table 7).

Table 7. Data of GJTs and Timed-essay of students S and K

Name	Pre/Post	(a)	(b)	(c)	(d)	(e)	GJTs scores
CLIL-S	Pre	11	66	6	1	5	61
(Mid-level)	Post	14	112	8	0	7	90
Non-CLIL-K	Pre	16	62	5	4	4	60
(Mid-level)	Post	13	50	3	0	1	52

To categorize the students' cognitive operation, we used seven CDFs and their representative verbs, which were considered to reflect the innate structures (FS) of science subject-specific formulas. Additionally, we added a mark (e.g., *Italic*[(1)]) when a learner was thought to be influenced by peers through group discussions. We also added a mark (*) to students' with some specific type of errors which may occur to the learners' linguistic developmental stage (global errors), however, we do not flag every error.

CLIL-Group

Extract 1: Student S (1st)
Today, in our class I learned and researched (*) about the structure of refraction. I haven't known about it clearly, but through using the internet, I could know a little. In our groups, especially *I researched* (*) *about why*[(1)] *the coin under the glass which is filled with water disappears*[(2)]. I don't know *why it happens*[(3)], but *we will show everyone*[(4)] in our class. This class was exciting.
Notes: reasoning[(1)], science-specific language [(2)], expressing cause/effect[(3)(4)]

Extract 2: Student S (3rd)
In today's class, we made slide shows of PowerPoint. We will show everyone about an example of refraction in the experiment with PowerPoint next week. *I wrote a script about what refraction*[(5)] is, *how to do an experiment* and *why the phenomenon happens*[(6)]. I'm still in the middle of writing it[(7)], so I'll try to finish it *in order to succeed in our presentation*[(8)(9)](…).
Notes: science-specific language[(5)] reasoning[(6)], reporting[(7)] presentation[(8)], peer collaboration/ sharing the goal[(9)]

Extract 3: Student S (5th)
Today in our class, I watched other two groups' presentations[(10).] In Mr. S's group, they showed us an experiment about refraction with gestures[(11)]. So I could understand what they said. They also explained about scientists who discovered an example of refraction in history[(12)]. Any other groups didn't explain about scientists, so it was very interesting. Today, all of presentations in our class have finished. All of them were very interesting, funny, and exciting[(10)]. I felt that it is important not only to tell my own group's presentation but also to watch other groups' presentation because, by watching them, I can learn something new about how to make a presentation[(13)]. I would like to make it again. "Light-fiber" (…) thanks to this mechanism, we can live more comfortably[(12)].
Notes: evaluation[(10)], appreciation[(11)], relation to the society and history[(12)], presentation, narration, taking other perspectives[(13)]

Non-CLIL Group

Extract 4: Student K (1st)
I thought I should be more careful to hear *what secondhand said about me*. If someone told me, "*my friends told me* your *WARUGUCHI* (insulting)" *I would* anger to his friend, however, he may tell my insulting at first and his friend agree *with it SHIBUSHIBU (*reluctantly*)*[14]. Hearing my insulting next time, we should *ask*[15] him why you tell me that how do you think about it[16].
Notes: argumentation; suggestion[14] by giving thoughts using 3rd conditional sentences; justification[15], reasoning[16]

Extract 5: Student K (3rd)
I've kept reading and speaking English sentence every night since last month. At first I read it slowly but today I can read English sentence faster than *IZEN* (before). Keeping on reading everyday may make my English skill *improvement. I decided to continue reading and speaking English every day.
Notes: No CDFs were found.

Extract 6: Student K (5th)
I thought it is easier to read through than I expected. There were some words I didn't know but summary* is not very difficult. However, it is hard to translate in right Japanese. I thought I have to learn many meaning of one word and how to write in Japanese.
Notes: No CDFs were found.

The extracts from Student S (CLIL group) revealed an increased number of words, several descriptions of physical content, and musings about refraction and its practical use in society. Student S provided the names of the classmates with whom Student S had been working. This reflected the extent to which the students engaged in discussion, since sharing cognitive thought and knowledge constructions with L2 peers was highly correlated with a successful presentation. CDFs type components (e.g., narration, expression of cause/effect, taking other perspectives, and so on) also appeared in the essay, meaning that the student internalized the FSs and tried to either use entire FSs or apply them to make new expressions (e.g., *why the coin under the glass which is filled with water disappears*[2]).

On the other hand, Student K (non-CLIL group), who was not very confident in her English ability, used far fewer words and VO phrases (less than half) in the second essay than in the first essay. Furthermore, she used very few CDFs. She believed that remembering words and practicing might be the only way to study, and she could not find ways to improve her English. The non-CLIL group was given a clear explanation of targeted grammar at the

beginning of the class and then conducted exercises. She seemed to be engaged in translating English to Japanese for preparing for an examination and not to be involved in the context. This procedure seemed to ignore the nature of the language learning process.

6. Conclusion

The study implemented science in a CLIL setting and investigated the extent to which students' English achievement regarding procedural knowledge improved as a result, as compared with peer students in a non-CLIL setting. First, the observation of the timed GJTs revealed that the CLIL students' procedural knowledge regarding the target structures (1st and 3rd conditional) developed significantly over the course of the lessons. By contrast, the non-CLIL students exhibited no prominent improvement in procedural knowledge. It can therefore be said that the CLIL students' grammatical sensitivity to the target structures was more improved than that of the non-CLIL students. Second, the analysis of the timed essays showed that the CLIL students drastically increased their use of words and VO phrases. The students' sentence lengths and verb use represent their English proficiency in relation to productivity and their gained procedural knowledge. The increase in VO phrases could be influenced by the students' actions during the experiment, in which they used science-specific verbs (e.g., "If I put X into Y, it reflects the light back into X") and described concepts (e.g., "refract," "disappear"). We also observed an improvement in the students' argumentation (e.g., "They explained about scientists who discovered an example of refraction in history…it was very interesting," as one student wrote). The students came to understand how to formulate arguments and share their thoughts with classmates. We conclude that the students' procedural knowledge reflected the specified CDFs, and that cognitive thinking and knowledge construction in collaboration with L2 peers were both prevalent.

Although the JTE for the CLIL group did not explicitly explain the grammar, only supporting the students through useful sentence frames (see Figure 1) for 10 minutes in English while the group engaged in tasks, the group's grammatical errors in the timed essay decreased. The timed GJTs showed that the students not only crossed out ungrammatical sections, but also corrected areas that required explicit knowledge (Xavier, 2013). It can therefore be said that the students improved their declarative knowledge subconsciously through the CLIL lessons, while no such improvement occurred in the non-CLIL lessons. Thus, it is clear that CLIL provides a platform through which academic literacies impact language construction and communication of deep knowledge, strengthening fundamental links between thinking and language (Meyer, Coyle, Halbach, Schuck, & Ting, 2015). As we have shown, the qualitative analysis of the timed essay extracted from the CLIL group clearly revealed the meaning-making process according to the seven CDFs and exhibited the well-formed sentence frames that were grammatically more accurate than those in the non-CLIL essays. It is as if the

CLIL students observed their peers' presentations to borrow and apply the correct expressions through "moves" (Krӧss, 2014). CLIL gave the students space to learn science through group discussion rather than lectures or teacher-led discussion, which may have given the students more opportunities to realize "speech acts" (Llinares, Dalton-Puffer, 2015). By contrast, the essays extracted from the non-CLIL group used few CDFs and were less accurate. They also used terms from the mother language instead of attempting to find appropriate English words. With respect to FS, the non-CLIL process appears to fail in terms of grammaticalization.

This study has some limitations. We found a significant difference between the GJTs results for the two groups, possibly reflecting the extent of differences in the active occurrence of the cognitive operation of structures and subject content. Specifically, the essays referenced CDFs in extracts 1 through 6; however, due to limited space, we were unable to demonstrate further examples or cross-code other essays. Since the authors aimed to elaborate a CLIL teaching plan using science-specific terminology, proactive lesson planning may be essential to the results. As Nikula (2015) pointed out, many content teachers (e.g., science teachers using English) must realize the importance of "awareness-raising," "content-independent structural properties," "subject-specific formulations," "topic-related vocabulary," and so on. The reasons for this are that the innate structures acquired in CLIL facilitate more complex productivity and aid in developing procedural knowledge.

Notes

1. The Usage-based Model (UBM) holds that abstract grammar emerges from language use (Bybee, 1995; Langacker, 1987, 2000; Tomasello, 1998). Tomasello (2003) stated that the grammatical dimension of language is a product of a set of historical and genetic processes, known collectively as grammaticalization. That is, language patterns of use emerge and become consolidated into grammatical constructions.
2. Procedural knowledge is knowledge about how to accomplish things. The sum of procedures affects an individual's declarative knowledge (Anderson, 1993; Anderson, Fincham, & Douglass, 1997).
3. Declarative knowledge is concerned with structurally stored knowledge, and it affects language users' underlying knowledge about linguistic structure. (Anderson, 1993; Anderson, Fincham, & Douglass, 1997).

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Appendices

A1. Timed grammaticality judgement tests (pre-test)

No.	Test A :
1	If I put this paper into water, this papers' color will change from red to green.
2	If you can't head off an insult, you can at least ask, "Why are you telling me this?"
3	We could have had a longer holiday, if we hadn't spent so much money on the house.
4	If the baby is crying, it would be probably hungry.*
5	If she had done so, she would have been followed the advice of an Arab proverb.*
6	If I had framed a hypothesis, I could have succeeded in this experiment.
7	If an advertisement does not tell the truth, the advertiser is committing an offence.
8	If he realizes that, he would have run away.*
9	If I had used this theory, I could have changing the real world then.*
10	I wouldn't have been so depressed if I had known how common this feeling is.
11	They would not finish their homework unless they start now.*
12	If you need to end up with twelve pieces, you will have to snap eleven times.
13	If I had known about the exam, I would have paid more attention in class.
14	If frequency were used then, our ABC's would instead be our ETA's now.*
15	If you need more helpers, I can try and get some time off work.
16	If I put this paper into water, water will refract light.
	Test B: Timed translation
1	もしその結果をしていたら、彼はそんなことはしなかっただろう。
2	もしあなたが私を助けてくれていなかったら、私はその仕事をけっして終えていなかっただろう。
3	もし明日雨がふれば、自転車で学校に行きません。
4	もし私が遅れたら、君に電話するよ。
5	私たちがその試合に勝っていたら、当時のチャンピオンになっていたのに。

Note. Ungrammatical sentences are marked with (*).
If the number is underlined with ( ) ,it is related to science-based topic, whereas, if the number is double underlined with ( ), it is related to text-based topic.

A2. Timed grammaticality judgement tests (post-test)

No.	Test A
1	If you take the first bus, you will get there on time.
2	If I put this paper into water, you are seen the picture.*
3	If I had married Celia, we would have needed the money.
4	If she does not wear a coat, she would be cold.*
5	If I had known, I had have told you.*
6	If they had talked about me, I would have stopped speaking to them.
7	If I had used this breaker, I could have succeeded in this experiment.
8	If you book early, you will get a seat.
9	If she had done so, she follows the advice.*
10	I would have gone if he had invited me.
11	If I use the plastic bag, I will succeed in this experiment.
12	If we were not leave now, we will be late.*
13	If you need to end up with four pieces, you will have to snap three times.
14	If I have enough money, I would have bought a car.*
15	If I had framed a hypothesis, light had been refracted.*
16	If Sally tells you that Mary thinks you need to lose weight, you have no way of thinking how this came up between Sally and Mary.
	Test B　Timed translation
1	もしお金があれば、私は新しい車を買っただろうに。
2	もしあなたがアメリカに行くなら、あなだはビザが必要になります。
3	もしあなたが6時に起きていれば、バスに乗れたのに。
4	もし明日雨が降れば、私は家にいます。
5	もし彼の電話番号を知っていたなら、彼に電話したのに。

Note. Ungrammatical sentences are marked with (*) .
If the number is underlined with ( ) ,it is related to science-based topic, whereas, if the number is double underlined with ( ), it is related to text-based topic.

CLIL in Tertiary Education

Cross Curriculum Learning in CLIL-World Heritage, Early Childhood Education, and English

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Abstract
This paper examines a curriculum where World Heritage sites and children's picture book analysis were both taught using a CLIL approach. By combining the contents, the course aimed to provide a broader understanding of various cultures so students could work with children from different backgrounds in their future workplaces. The course was given to 13 sophomore-level university students majoring in early childhood education (ECE) in an introductory-level, required English class. Students were instructed to explore three World Heritage sites from historical, geographical, and biological points of view. Simultaneously, children's books were introduced so students could compare and evaluate their unique features. At the end of the term, students created original picture books in English that introduced elements of different cultures incorporated into a narrative for children. The books expressed clear messages to children beyond the value of each site. Based on students' reflections on the course, close collaboration with the ECE department was suggested in order to evaluate the effectiveness of their work. This approach provides an example of multiple cross curriculum learning in CLIL.

Keywords: Cross curriculum learning, Early childhood education, Picture books, World Heritage sites, CLIL

1. Introduction

CLIL, by its nature, is cross curriculum learning because a certain subject and language are taught at the same time. The study in this paper extends beyond this dual-subject learning, where two different subjects, World Heritage sites and children's picture book analysis, were taught in a required English class. The course was designed to complement the students' major, which was early childhood education and care (ECE). In this paper, the reasons for choosing the two different subjects will be discussed first. Then, the rationale for using a CLIL approach in this context will be explained. After that, the process of learning will be explained, including examples of student output. These works demonstrate how students acquired the knowledge and expressions to create original picture books. This will be

followed by an analysis of the three books the students created. Finally, students' reflections on the course will be shared to raise awareness of issues for future teaching.

2. The rationale for this curriculum design

The rationale for using the two different subjects and that of applying CLIL will be explained.

2.1 Learning about World Heritage sites in an ECE English course

A World Heritage site here refers to a site designated by UNESCO as having "outstanding universal value." Through learning about the sites, students were able to nurture a broader understanding of various cultures and develop respect for them. This is important for ECE majors for the following reasons.

2.1.1 A step toward knowing more about the world

Although the birth rate of Japan is one of the lowest in the world, the number of children who go to pre-school is increasing each year. According to the Ministry of Health, Labour and Welfare, the number has continued to gradually increase, reaching 2.5 million in 2017 (Hoikujo kanren, 2017). The number of children who are foreign nationals is also increasing, depending on the region. For example, a preschool in Nagoya City, where the number of children who are foreign nationals accounts for 30 percent of the student body (Nagoya International Center, 2010), has children from China, Brazil, and Peru. The Japanese government policy is to increase the number of foreign workers and to extend their length of stay to accommodate for the lack of skilled workers in Japan. Accordingly, the number of children of foreign nationality in schools is expected to increase.

2.1.2 The kindergarten course of study for children from foreign countries

The course of study for kindergarten (MEXT, 2018: 12) provides instruction in working with children who "have relation with foreign countries." This refers to young children who were raised overseas (including returnees and foreign nationals) and those with parent(s) of foreign nationalities. The course of study highlights the importance of childcare workers to possess knowledge of the country where the child was raised and an understanding of its culture. Under these circumstances, learning about World Heritage sites helps to nurture a broader understanding of various cultures in order to work with children from different backgrounds.

2.2 Analyzing picture books in an ECE English course

Picture books play an important role for children. Their content meets the demand of ECE majors for the following reasons.

2.2.1 English picture books for ECE

Picture books have been used as a material in English classes for ECE major students in a

variety of ways. Komiya (2003) made her ECE major students translate English picture books which feature foreign cultures. She made them create their Japanese version of the books and displayed their works at local events where local parents and children participated. According to Komiya, the activity helped students notice the differences in not only the rhetoric but also that in the social background between English and Japanese. Konbu (2013; 2014) introduces an institutional approach using English picture books as a sub material for ECE majors. By creating such curriculum, the department was able to raise students' motivation of learning English, and help students be prepared for a multi-cultural environment in their future careers. The studies show that the use of picture books are effective for the ECE majors in learning English.

2.2.2 The kindergarten course of study using picture book activities

The course of study for kindergarten states that reading picture books for children is one of the most effective ways of enhancing young children's language learning (MEXT, 2018: 104). It also states the importance of children encountering imaginary and unknown worlds through picture books, and sharing their thoughts with peers and teachers at kindergarten (MEXT, 2018: 204). For ECE majors, learning the features of picture books will meet their needs and interests.

2.3 CLIL in ECE English course

The principles of a CLIL approach and the rationale of the application to the introductory-level ECE English course are explained here.

2.3.1 CLIL in Europe and in Japan

The practice of CLIL was promoted in Europe in the 1990s and has been adopted in primary and secondary schools in the region for more than 20 years. Under the initiative of the European Centre for Modern Languages of the Council of Europe (ECML), the CLIL approach was promoted to 47 member states of the Council. These states share standards of language education more or less influenced by the ECML. Thus, CLIL was implemented as a common educational policy in the region.

In Japan, since around 2010, some practices of early CLIL have been gradually introduced and reported at seminars sponsored by institutions such as the British Council and the Sophia Linguistic Institute for International Communication. While in Europe subject teachers are the main practitioners, in Japan teachers of foreign languages, primarily English, have been the main driving force for practicing CLIL. In particular, Sophia University began providing CLIL courses in 2014 (Ikeda et.al, 2016) and since then, has created a series of study, including the process and recent outcomes of the institutionary implementation of CLIL (Watanabe et al., 2011; Izumi et al., 2012; Ikeda et al., 2016). The studies have contributed to a wider recognition of the CLIL practice, not only in primary and secondary education,

but also in tertiary education, making the use of CLIL in Japan unique.

2.3.2 The rationale for using a CLIL approach in an ECE required English course

There are several reasons why a CLIL approach is suitable for ECE majors. Firstly, CLIL has a clear theme of what will be taught. This suits the need of a vocational education such as this course where students develop specific skills related to young children. The application of CLIL will enhance a holistic approach in nurturing childcare professionals. Secondly, childcare professionals are expected to contribute to the local community. They are most likely to encounter a variety of people, including children and parents, nationals and non-nationals. In fact, all the students in the department undergo a series of teaching practice at a local kindergarten or pre-school. Mehisto et. al (2008) state that under the principles of "community," one of the principles of the 4Cs, CLIL "students have the self-confidence and skills to work within a group and the local community, balancing personal interests with those of others" (2008: 31). Thus, a CLIL approach will benefit ECE majors in their future workplace. Note that of the 4Cs, "community" can also be referred to as "culture" depending on the context.

2.3.3 CLIL Curriculum design for introductory learners of English

One of the features and strengths of CLIL lies in its curriculum design, where learners' cognitive development is carefully incorporated into the main components of the curriculum. In other words, the process of how students learn or think is integrated into the CLIL class/course aims, tasks, and target language skills. Although such cognitive development of students is invisible by nature, CLIL offers a variety of charts and graphics that make the process as visible as possible to teachers. Table 1 shows one way of planning for a CLIL class (Ikeda, 2016: 17). The columns of the chart show the four components of the 4Cs Framework, i.e. Content, Cognition, Communication and Culture (Coyle et al., 2010).

Table 1. A plan for a CLIL class (Ikeda, 2016)

Content	Communication	Cognition	Culture
Declarative knowledge	Language knowledge	Lower-order thinking skills	Cooperative learning
Procedural knowledge	Language skills	Higher-order thinking skills	Global awareness

Table 2 shows how this design was adapted to the course design in the study. The first column shows Content, which consists of declarative knowledge and procedural knowledge. This notion derives from the three dimensions of CLIL, i.e. concepts, procedures, and language (Ball et.al., 2015). Declarative knowledge refers to the conceptual knowledge students learn in the course, such as features of World Heritage sites or of picture books.

Table 2. The plan for this course (format adapted from Ikeda 2016)

Content	Communication	Cognition	Culture
Declarative knowledge: · Three World Heritage sites · The features of picture books for children	Language knowledge: Words/ expressions for · Geography · History · Biology · Picture books	Lower-order thinking skills: · Remembering words and phrases · Understanding features · Explaining historical and geographical events	Cooperative learning: · Group research · Presentation · Reading out to pairs
Procedural knowledge: · Present historical events in order · Present research findings in class · Skim information from the Internet · Discuss and reach a consensus in creating a picture book	Language skills: · Give a short presentation (30-second/ one-minute speech) · Write a paragraph · Listen carefully and take notes · Read and create a mind-map	Higher-order thinking skills: · Comparing World Heritage sites · Analyzing picture books · Creating a story for children	Global awareness · Learn different cultures and customs · Learn universal value

On the other hand, procedural knowledge refers to the knowledge students need to carry out tasks, such as using the internet to do research or creating a book in an appropriate layout. The last dimension, language, is incorporated in Communication, which is the second column. Communication, consists of language knowledge and language skills. The former is the language needed to understand the subject, such as language specific to geography or history. The latter is the language needed to complete tasks, for example, writing a paragraph or taking notes. This classification derives from the Language Triptych, i.e., "the language of learning," "the language for learning" and "the language through learning" (Coyle et. al., 2010: 36). Language knowledge refers to the language of learning, while language skills refers to the language for learning. The third column, Cognition, is divided into LOTS (Lower Order Thinking Skills) and HOTS (Higher Order Thinking Skills) from the Bloom's new taxonomy (Krathwohl, 2002). This concept guides teachers in planning tasks varying from LOTS to HOTS. For example, "remembering words and phrases" is a task using LOTS, while "creating a picture book" is a task using HOTS. It is important to guide students in

using higher-level thinking skills, regardless of their English levels. The last column, Culture, or Community, consists of cooperative learning and global awareness. The former encourages teachers to have students do pair work and group work in order to learn from each other. The latter reminds teachers to create a plan that promotes international understanding in the course. In this way, introductory learners in the course were expected to be fully engaged in the activities planned.

Although not visualized in this planning sheet, another notion which categorizes and differentiates learners' cognitive abilities in CLIL is BICS (Basic Interpersonal Communication Skills) and CALP (Cognitive Academic Language Proficiency). The terms were originally coined by Cummins (2000) and introduced into CLIL by Ball et.al. (2015). It can be interpreted as "conversational language" and "academic language," respectively (Cummins, 2000: 40). Learners need to acquire BICS in order to speak with their peers in class, and need to acquire CALP in order to understand the content in an academic way. In this course, students were expected to enhance CALP more through learning about World Heritage sites rather than through picture book analysis. This was because learning about World Heritage sites included typical subject information about history, geography (e.g. landscape and land use) and biology (e.g. ecosystem), which students had to describe in speeches and writings. BICS were acquired more when they interacted with others through picture book activities. For example, in the storytelling activity, students were encouraged to give questions to the audience who pretended to be children. In creating a picture book, students produced dialogue between the characters following the plot. However, it was more difficult to enhance BICS than CALP as students were introductory learners and often hesitated to communicate in English between peers.

2.3.4 CLIL focused on purpose

Recently, the CLIL practice has focused on "genre" in particular. Dale and Tanner define the term as activities such as "to recount, report, instruct, explain, persuade, or discuss" (2012, P.36), and maintains that learners produce different genre according to the purpose of a subject. Llinares et.al. define the term as "an activity recognized in a particular society or culture, in which language is involved …" (2012, p.110). Showing a variety of genre-specific texts produced mainly by secondary students, Llinares et.al. maintain that students should learn to produce the genre conforming to the subject in order to understand academically. "The Graz Group," which is a project team run within the ECML led by CLIL experts including Do Coyle, maintains that the CLIL practice has moved from the "4Cs Framework" to an evolved approach called the "pluriliteracies approach" (Coyle, 2015; Meyer et al., 2015). Under the approach, language is aimed to be fully used by learners according to a specific purpose, where students are capable of choosing the appropriate style, mode, and genre. The Graz Group defines genre as a social activity that has a purpose. The group suggests that teachers should guide learners, from novice to advanced, to learn subject matter,

and also guide them to communicate their understanding of the subject matter appropriately, conforming to the purpose of using the language. In this way, each subject has typical genres and when learners are capable of producing them, a deeper learning will be promoted.

In learning World Heritage sites, students learned to produce subject specific genres such as those in Table 5. When students created picture books for children, the genres were set conforming to the common features of children's picture books. Gibbons (2002) argues that children who are learning to read in their L2 will find books which have certain characteristics supportive. Some examples of them are "repetitive language that becomes familiar to children," "a repetitive event that builds up into a cumulative story," "good, authentic models of language that doesn't sound contrived" and "content and language that can be used to extend children's knowledge about reading and about the world" (2002, p.99). Seta (1980) maintains that the feature of "here and back again (*yukite kaerisi*)" in the storyline worked most favorable to the cognitive development of children. For children, story listening is equivalent to "experiencing" an adventure, in which a book guides children to an imaginary world and back to the real one (Ikoma, 2008; Saito, 2006). Matsui (1981) argues that in a good picture book, the main theme of the story is conveyed by or through the characters in the story verbally, or by action. These characteristics of children's books were taken into consideration setting the genres students produced when they created picture books. The genres aimed at are shown in Table 6 (See the third box, "Genre").

3. Method

3.1 Participants

The study was carried out in a required English class at a women's university with 13 ECE major sophomore-level students. They were allocated in the introductory level group after a streaming test, however, their English proficiency level varied greatly from A1 to A2. A few of them frequently complained about how difficult it was for them to construct sentences correctly in English.

3.2 Materials

The course book used was "CLIL World Heritage" (Sasajima, et.al., 2018), a book designed for CLIL. The author of this paper is also a co-author of the textbook. A selection of picture books were also used.

3.3 Course design

The study was carried out for 15 weeks, which was one semester. Table 3 shows the four stages and tasks of the course. The left column, "Activities on World Heritage," was repeated three times for learning about three World Heritage sites one after another, which were "Machu Picchu," "Shiretoko" and "The Statue of Liberty." Worksheets *A* to *E* are shown in Figures 1, 2, 8, 11 and 13 with students' examples.

Table 3. Four stages and nine main tasks of the course (Adapted from Ikeda, 2016: 17)

Stages	Activities on World Heritage sites	Activities on Picture Book Analysis
1	Task 1: Research popular sightseeing spots and activities on the website and exchange the findings in class. · Do research. · Give a short presentation. · Listen and take notes. · Complete worksheet *A*.	Task 6: Classify books between fiction and non-fiction and compare content, style, and how children are affected by them. · Discuss in groups. · Share ideas in class. · Complete worksheet *C*.
2	Task 2-5: Learn about the sites from several aspects including history, geography, science through listening and reading passages in the textbook. · Learn subject specific vocabularies and write some sentences using them by completing worksheet *B*. · Fill in the missing words in a dictation test. · Make a mind-map. · Give a short speech (and write a paragraph).	Task 7*:* Read three classical picture books and find similarities and differences. · Read the picture books in groups. · Discuss in groups · Share ideas in class. · Complete worksheet *D*.

stages	Activities on creating a Picture book
3	Task 8: Create a picture book introducing a World Heritage site for young children. · Create a storyline that consists of an introduction, development, turn and conclusion in worksheet *E*, think and decide which features of the heritage you will show in the story, identify the main characters, decide the phrase or sentence you will repeat, and illustrate pictures.
4	Task 9: Read the book aloud to others.

Table 4 shows the input content of the course. (Note that of the 15 lessons in the course, the first lesson was used for orientation and the last three for making picture books and giving presentations.)

Table 4. Input content of the course

Lesson number	Input content	
	World heritage sites	Picture book analysis
Lesson 2-5	Machu Picchu · History of the Inca Empire · Landscape and land use	Similarity and differences of fictional picture books and non-fictional ones · "*Darumachan to Tenguchan*" and other books listed in Figure 9
Lesson 6-8	Shiretoko · Geography · Food chain	Common story patterns · "Mr. Gumpy's Outing" · "The Mitten" · "We're Going on a Bear Hunt"
Lesson 9-12	The Statue of Liberty · History of the US independence · Architecture	Phonics and story-telling skills · Story-telling video of "The Three Little Pigs" · Phonics patterns

Table 5 shows students' goals, genres and tasks in different subject areas and language skills in the case of learning the "Historic sanctuary of Machu Picchu." The skills are divided into three areas, i.e., speaking/writing, grammar, and vocabulary.

Table 5. Goals, genres and tasks according to subject areas and language skills (in the case of Machu Picchu)

Subject areas	Skills	Goals and genres expected to produce	Tasks
History	Speaking/writing:	Students describe the brief history of the Inca Empire including how it flourished and how it was destroyed and how the site was discovered later.	· Mind-mapping · 30 second speech · Writing a paragraph
	Grammar	Students understand how past tense and passive tense is used when talking about history.	· Dictation test · Sentence practice
	Vocabulary	Students use specific nouns (empire, emperor, successor, century) and verbs (build, expand, destroy, invade, capture, occupy, discover, explore) when they talk about the history of the Inca Empire.	· Vocabulary list · Dictation test

Geography	Speaking/writing	Students describe geographical location, landscape, and land use of Machu Picchu. Students define some of the geographical features such as mountain ridge and terrace fields.	· Mind-mapping · 30 second speech · Writing a paragraph
	Grammar	Students understand how present tense and past tense is used when talking about the location and the geographical features.	· Dictation test · Sentence practice
	Vocabulary	Students use specific nouns/ phrases (mountain ridge, sea level, land, crop, terrace field, slope, ground, landslide, earthquake) and verbs/ verb phrases (locate, surround, build, make the best use, produce, prevent)	· Vocabulary list · Dictation test

4. Students' tasks

4.1 Tasks of World Heritage sites

There were five main tasks. The effectiveness of each task was addressed in a questionnaire that was given to students in the end of the term.

4.1.1 Doing research and sharing in class (Explaining: LOTS)

This task was designed to arouse student interest in a particular World Heritage site when it was initially introduced. The worksheet showed four typical pictures of the site, such as popular tourist spots or activities. Students chose one picture, did research at home, then shared their findings in class in groups. A worksheet was provided to record notes about the shared information. Figure 1 shows the worksheet on Shiretoko.

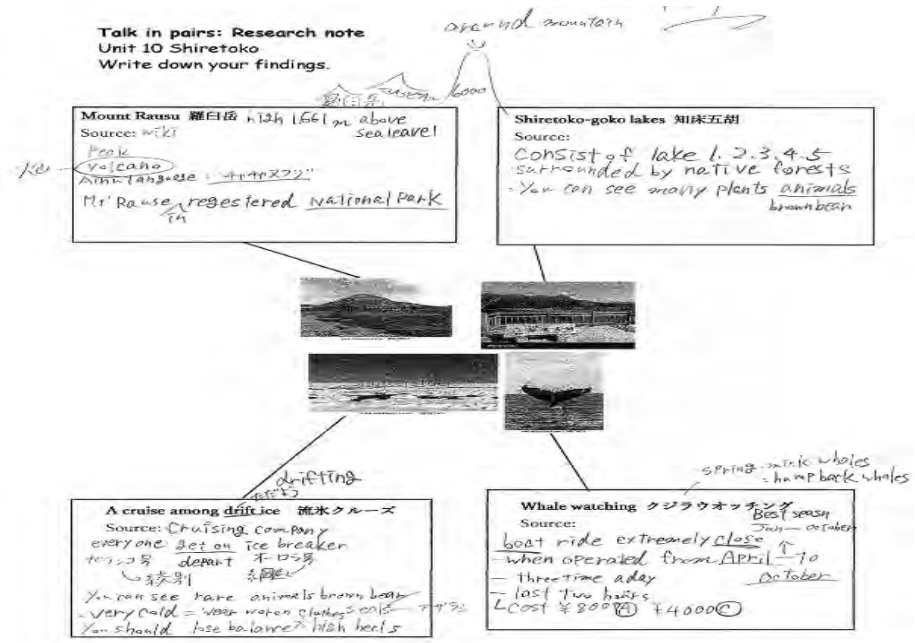


Figure 1. Student *O*'s "Research note worksheet" (Worksheet *A*) of Shiretoko

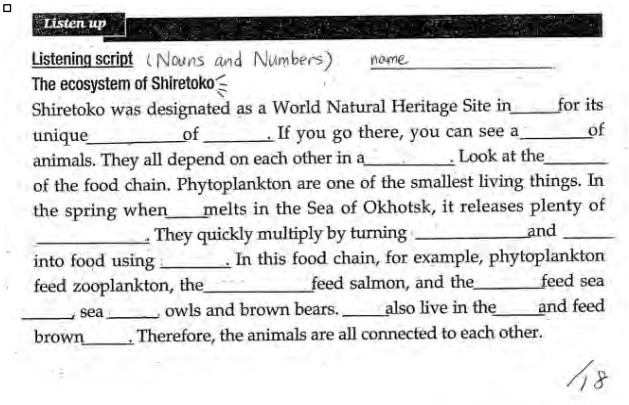
4.1.2 Listing keywords and making sentences (Listing: LOTS)

This very basic task was aimed at supporting students who were relatively weaker in English than the others, and focused primarily on language. Students were given the double-sided worksheet (figure 2) and asked to create a word list and then use it to write example sentences. For the word lists, students also had to categorize each word according to part of speech, i.e. verb, noun, adjective. When they made sentences, they were required to make at least two types of sentence structures, such as *SVO* and *SVC*.

Figure 2. Student *N*'s "vocabulary worksheet" (Worksheet *B*) of Shiretoko

4.1.3 Filling in missing words in a dictation test (Remembering: LOTS)

The aim of the dictation test was to help students gain familiarity with words and phrases specific to subjects such as history and geography. The test had missing words that had to be filled in as students listened to a passage, and also had several versions depending on which part of speech was missing such as "missing nouns and numbers test" (Figure 3), "missing verbs test" (Figure 4), and "missing adjectives and adverbs test." In each version of the test, students listened to the same passage, but the words to fill in were different. The tests helped students become aware of proper sentence structure. The students also became more confident in their English skills as their test scores improved each time.



Listen up

Listening script (Nouns and Numbers) name

The ecosystem of Shiretoko

Shiretoko was designated as a World Natural Heritage Site in ____ for its unique ____ of ____. If you go there, you can see a ____ of animals. They all depend on each other in a ____. Look at the ____ of the food chain. Phytoplankton are one of the smallest living things. In the spring when ____ melts in the Sea of Okhotsk, it releases plenty of ____. They quickly multiply by turning ____ and ____ into food using ____. In this food chain, for example, phytoplankton feed zooplankton, the ____ feed salmon, and the ____ feed sea ____, sea ____, owls and brown bears. ____ also live in the ____ and feed brown ____. Therefore, the animals are all connected to each other.

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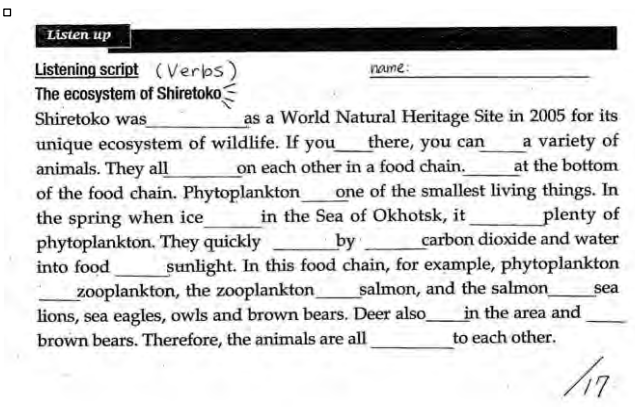
Figure 3. "Missing nouns and numbers test" of Shiretoko



Listen up

Listening script (Verbs) name:

The ecosystem of Shiretoko

Shiretoko was ____ as a World Natural Heritage Site in 2005 for its unique ecosystem of wildlife. If you ____ there, you can ____ a variety of animals. They all ____ on each other in a food chain. ____ at the bottom of the food chain. Phytoplankton ____ one of the smallest living things. In the spring when ice ____ in the Sea of Okhotsk, it ____ plenty of phytoplankton. They quickly ____ by ____ carbon dioxide and water into food ____ sunlight. In this food chain, for example, phytoplankton ____ zooplankton, the zooplankton ____ salmon, and the salmon ____ sea lions, sea eagles, owls and brown bears. Deer also ____ in the area and ____ brown bears. Therefore, the animals are all ____ to each other.

/17

Figure 4. "Missing verbs test" of Shiretoko

4.1.4 Mind-mapping (Illustrating: LOTS)

Mind maps were created after reading and understanding a passage in the textbook. This activity helped students visualize their understanding using keywords. It also helped them explain what they learned in their own words, avoiding rote learning. Figures 5 and 6 show

examples of student *W* and student *R*'s mind maps, which describe the history of the Inca Empire. The two maps look very different although they tried to display the same content from the same reading passage. This demonstrates that the method in which students conceptualize knowledge is different, since each student created their own map according to how they had interpreted the content.

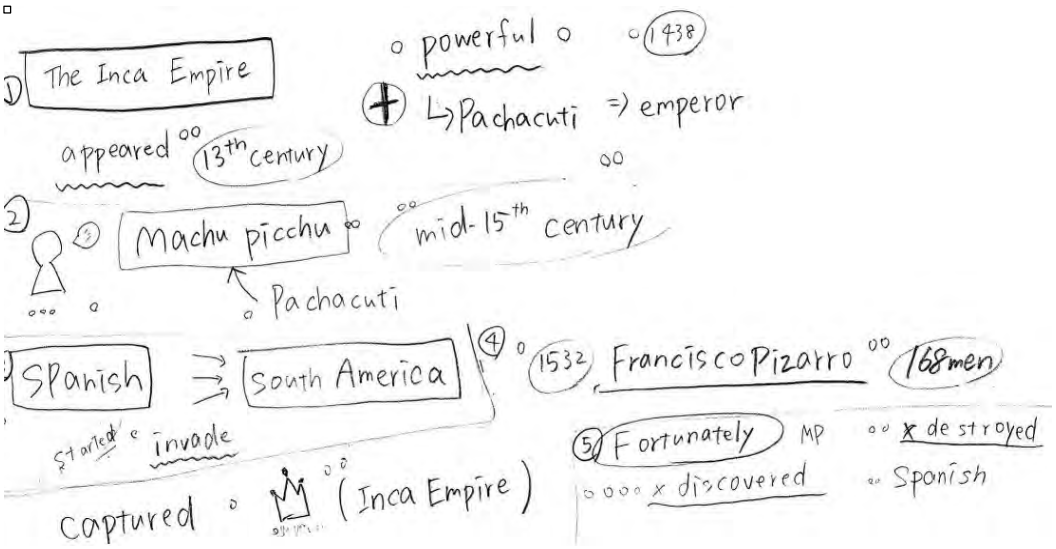


Figure 5. A mind map made by student *W* (the history of the Inca Empire)

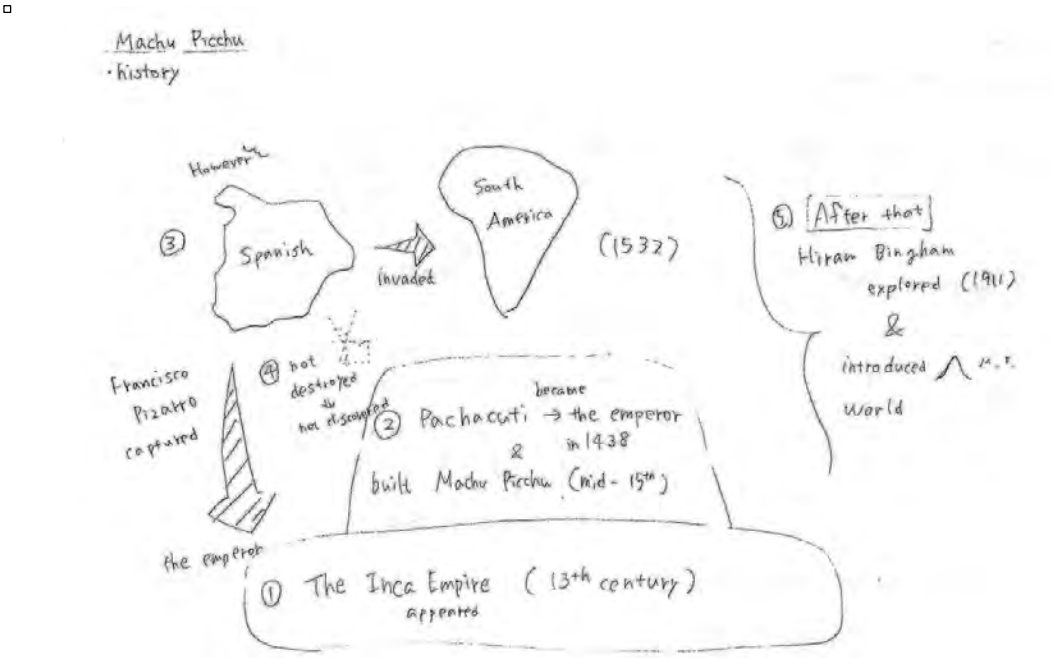


Figure 6. A mind map made by student *R* (the history of the Inca Empire)

4.1.5 Making 30-second/ one-minute speeches (Explaining: LOTS)

The 30-second/one-minute speech activity was carried out several times in pairs after reading a passage on each World Heritage site studied during the term. This was done in order to check understanding orally between peers. The speeches were also checked and evaluated for the mid-term test. In the test, each student took turns making two one-minute speeches in front of the whole class. They were allowed to look at their own mind maps while they made their speeches. Although this helped students feel safe when speaking in front of the class, some students were only able to verbalize words or phrases they wrote on the map without being able to create complete sentences. Figure 7 shows the transcript of student *W*'s one-minute speech made during the test. She was able to build sentences logically in her speech looking at her map (Figure 5), although the passage was similar to the original text in the textbook.

"Inca Empire appeared around the 13th century, and became powerful when Pachacuti became the empire in 1438. It is said that Machu Picchu… Machu Picchu was built by Pachacuti around the mid-15th century. The… the Spanish started to invade South America. In 1532, Francisco Pizarro, with his 168 men captured the empire of the Inca Empire. Fortunately, Machu Picchu was not destroyed for.. for it was not discovered by the Spanish."

Figure 7. A transcript of student *W*'s one-minute speech

4.2 Tasks of picture book analysis

Learning the various features and aspects of picture books was another topic of this course. Unlike learning about World Heritage sites, however, students focused on comparing or discussing each feature rather than focusing on language. Because students were introductory learners, they were allowed to talk in their L1 (Japanese) in group discussions, and when they shared their findings in class, they were encouraged to explain in English with the help of the teacher. The teacher always wrote down the key vocabularies and phrases students could use on the blackboard so that students were able to explain their ideas in English and write them down on their worksheets.

4.2.1 Comparing Fiction with non-fiction (Comparing: HOTS)

A framed worksheet (Figure 8) was used as preparation for speaking and writing. In this activity, the teacher first brought a set of picture books to class and showed them to students. The list of them is shown in Figure 9. Then, the teacher asked students to classify the books into two groups, fiction and non-fiction. After that, students talked in groups and listed the titles of other picture books they were familiar with. Every group had some books in common and talked about their childhoods in Japanese. Once the group determined specific

books they had in common, they compared the content, style, and possible impact on children for each book, then wrote down the main points in English on the worksheet. Following the group discussion, students shared their ideas together in class.

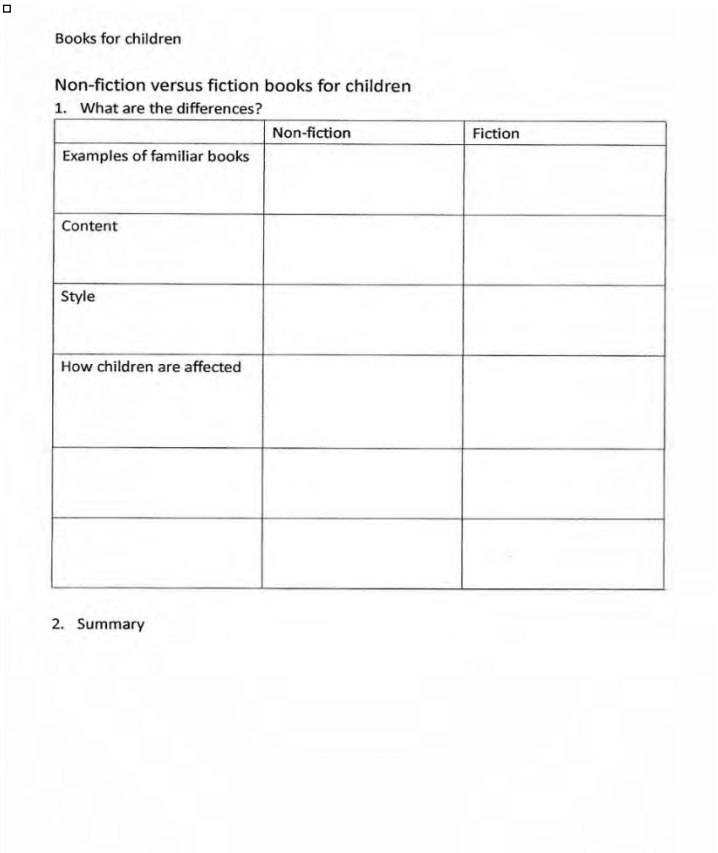
An example of a fiction/ non-fiction book is…

The content is about…

The book uses…

Children will learn …
Children will learn how to…

- real
- imaginary
- overcome difficulties



Books for children

Non-fiction versus fiction books for children

1. What are the differences?

	Non-fiction	Fiction
Examples of familiar books		
Content		
Style		
How children are affected		

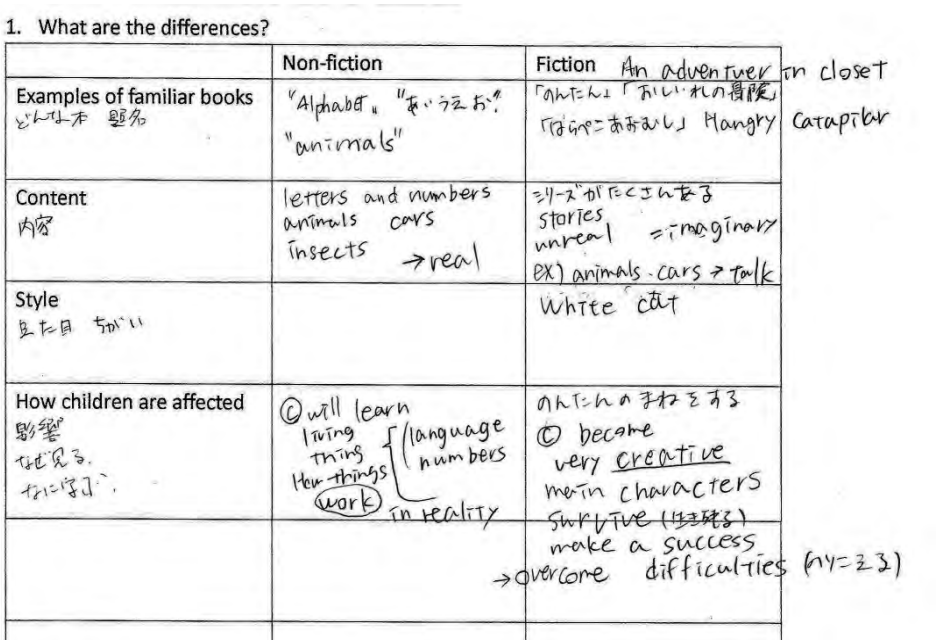
2. Summary

Figure 8. Worksheet for "non-fiction books versus fiction books" (Worksheet *C*)

Daruma-chan and Tengu-chan	Satoshi Kako (1967)
Pyramid - its history and science	Satoshi Kako (1990)
Barbapapa goes to Andes	Annette Tison & Talus Taylor (1999)
Paradise – people and animals in Shiretoko	Toshitaka Sekiya (2005)
Miki's First Errand	Akiko Hayashi (1977)
Where the Wild Things are	Maurice Sendak (1963)
Lots of wonders- protecting Machu Picchu	Zen Shirane (2013)

Figure 9. List of books introduced in "fiction versus non-fiction"

The teacher provided students with sentence structures and vocabularies so they were able to share their ideas easily (Figure 8). After the discussion, students wrote a summary of their findings.


1. What are the differences?

	Non-fiction	Fiction An adventuer in closet
Examples of familiar books どんな本 題名	"Alphabet" "あいうえお" "animals"	「のんたん」「おいしいれの冒険」「はらぺこあおむし」 Hangry Catapiler
Content 内容	letters and numbers animals cars insects →real	シリーズがたくさんある stories unreal =imaginary ex) animals · cars → talk
Style 見た目 ちがい		White cat
How children are affected 影響 など見る。 なにがよい。	©will learn living thing How things work { language numbers in reality	のんたんのまねをする © become very creative main characters survive (生き残る) make a success →overcome difficulties (かんこう)

Figure 10. Student *M*'s "Non-fiction versus fiction books for children" worksheet

As seen in Figure 10, Student *M*'s group shared ideas such as follows:

- An example of a fiction book is "*Nontan*"
- The content is about a white cat.
- The book uses talks between animals.
- Children will learn how to overcome difficulties.

In the same way, students described non-fiction books and compared their features. Through the discussion, students all agreed on the following features of fiction picture books as co mpared to non-fiction ones. These were: 1) animals and cars often talk, 2) dialogue is used rather than long descriptions., 3) illustrations are used rather than photos, and 4) they intend to encourage children rather than providing knowledge. With these features in mind, in the next task, students compared three classic works of fiction for children.

4.2.2 Comparing three classic fictional picture books (Comparing: HOTS)

In this task, students compared three picture books, "Mr. Gumpy's Outing" (Burningham, 1970), "We're Going on a Bear Hunt" (Rosen and Oxenbury, 1989) and "The Mitten" (Rachev and Matsui, 1994), and identified the similarities and differences in groups using a

simple worksheet (Figure 11). All three books are well-known around the world, and both "Mr. Gumpy's Outing" and "We're Going on a Bear Hunt" are prize-winning titles, which are the Greenaway Medal and Nestlé Smarties Book Prize, respectively. "The Mitten" is a Ukrainian folktale and this version, illustrated by Rachev, was first published in the 1950s, but later re-published in many different languages. The activity began by reading one of the books in groups. Students picked a book and took turns reading it aloud together in their groups. When they finished reading it, they passed it to the next group, received the next book, and followed the same procedure until each group had read all three books. Then, still in groups, they discussed and noted their findings together on the worksheet. Here again, the teacher wrote some expressions on the board to provide scaffolding for presenting their ideas (Figure 11). Finally, the entire class shared all of their ideas together.

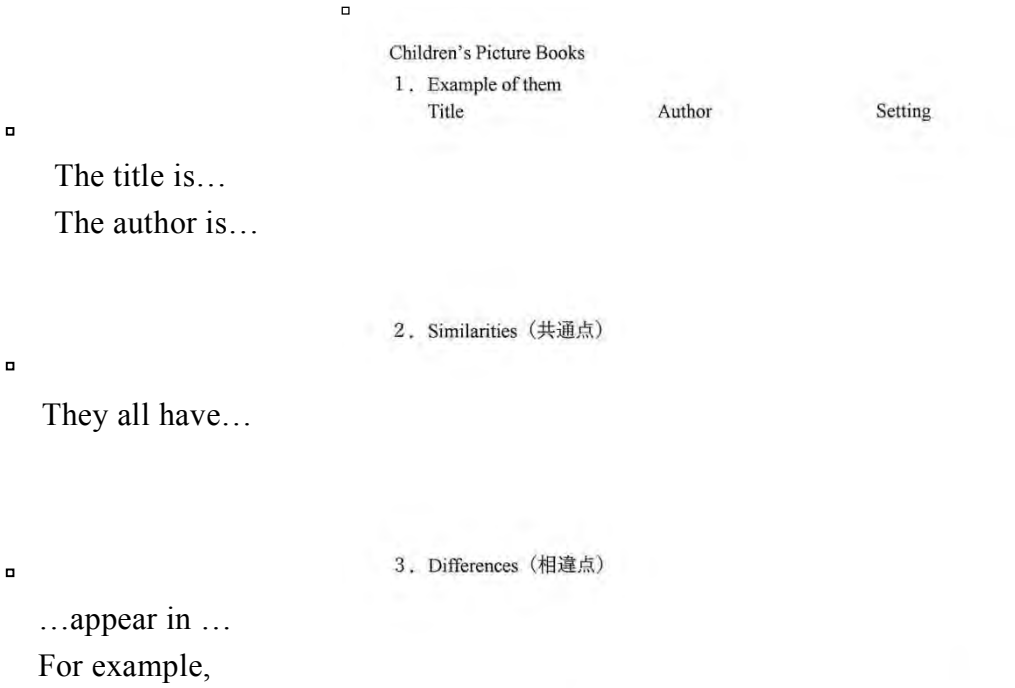
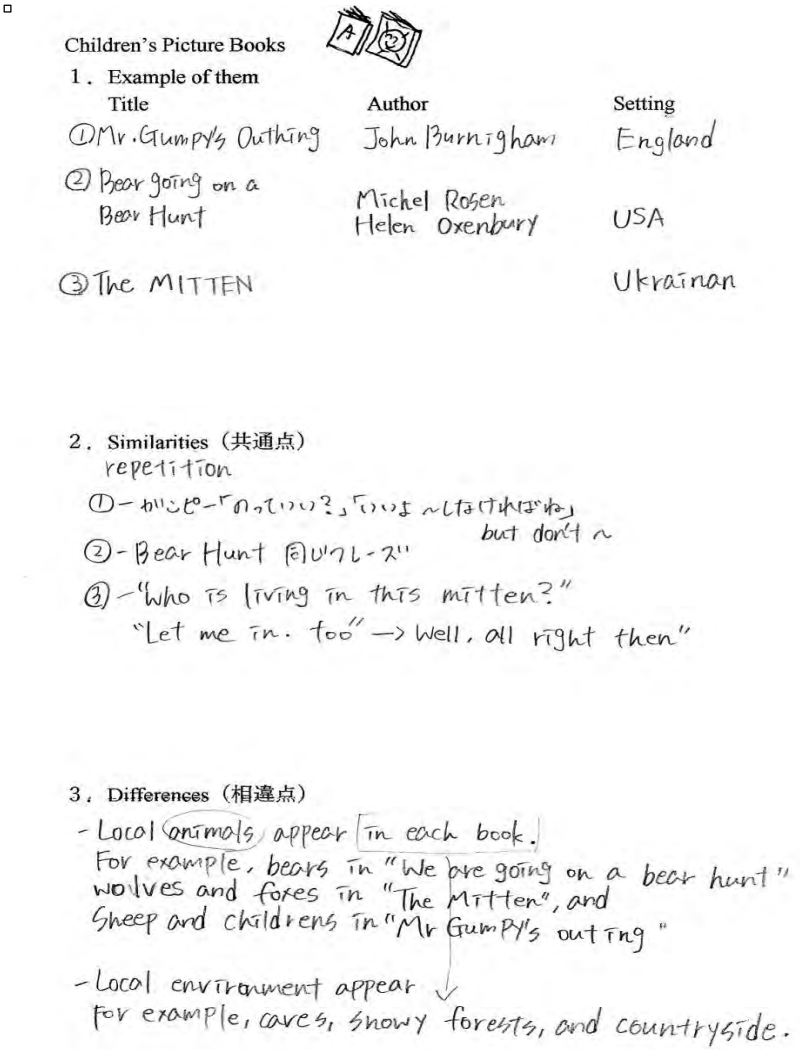


Figure 11 Worksheet for "comparing three picture books" (Worksheet *D*)

Figure 12 shows an example of a worksheet filled in by a student. There are grammatical errors and some parts are written in Japanese, however, the student's points are clearly shown. After the discussion, the class acknowledged the following common features in all three books: 1) verbal rhythmical repetitions were used, 2) repeated actions were used, 3) dialogue was used, 4) sentences were short, 5) an unexpected event happened somewhere in the story, 6) at the end of the stories, every character went back home, 7) the local environment (e.g.

animals and nature) was described. The differences students pointed out were related to the settings. Students thought the animals and nature that appeared in the books were all different because of the settings, which were a countryside, a mountainside, and a snowy forest. The class decided to follow these features as much as possible when creating books for young children, because they all agreed the features would make the books easy to understand (repetitions, dialogues, and short sentences), excite children (unexpected events), make them feel secure (going back home), and teach them about different places (local settings).


Children's Picture Books

1. Example of them

Title	Author	Setting
①Mr. Gumpy's Outing	John Burningham	England
② Bear going on a Bear Hunt	Michel Rosen Helen Oxenbury	USA
③The MITTEN		Ukrainan

2. Similarities (共通点)

repetition

①-かいこぴー「のっていい？」「いいよ～しなければね」but don't～

②-Bear Hunt 同じフレーズ

③-"Who is living in this mitten?"

"Let me in. too" → Well, all right then"

3. Differences (相違点)

- Local animals appear in each book.
  For example, bears in "We are going on a bear hunt"
  wolves and foxes in "The Mitten", and
  Sheep and childrens in "Mr Gumpy's outing"
- Local environment appear
  for example, caves, snowy forests, and countryside.

Figure 12. Student *J*'s "comparing three picture books" worksheet D

4.3 Creating a picture book

The last three classes of the course were used to create a picture book for young children. In groups, students chose one of the three heritage sites they had learned about in the course, which were either Machu Picchu, Shiretoko, or the Statue of Liberty. The sites were to be

the settings of the books. Before starting the project, the class reconfirmed the features of the three picture books they had read in class and agreed on the following points as a common guideline of the book.

- Use repetitive dialogue which is easy to be followed and imitated by children.
- Use repetitive actions.
- Make the characters "there and back again."
- Make "*ki sho ten ketsu* (introduction, development, turn and conclusion)" in the storyline.
- Show features of World Heritage sites in the setting.

4.3.1 Creating a storyline (Creating: HOTS)

The instructions given were: 1) identify the characters and the setting, 2) plan a storyline, 3) divide the story according to scenes, which would be the pages of the book, 4) allocate one student per scene, meaning one student was responsible for at least one scene, 5) draw pictures, and write the narration and dialogue on a sheet of A5 paper, and 6) submit the sheets on the last day of class. A worksheet containing a set of grids was used for writing down the whole story, with each grid used to describe a scene. Group *A* planned 10 scenes for their picture book (Figure 13).

Figure 13 Group *A*'s "storyline grid worksheet" (Worksheet *E*)

The teacher provided help for each group individually if any support was needed during class. Their use of English in the worksheet was checked and asked for correction if needed.

4.3.2 Storytelling (Understanding: LOTS)

On the last day of class, each group gave a storytelling presentation in front of the entire class, reading their stories aloud and showing their pictures. The illustrations were still drawn only in pencil, and some without colors, but the storylines and pictures were easily understood. Because it was incomplete, the project was carried over to the following semester. Students finished their pages during the holiday and brought them back to class. After collecting all the pages the following semester, the teacher had them bound at the faculty document center. Thus, the book was completed in proper form in the beginning of the second semester.

5. Results and discussions

5.1 Three picture books

The titles were "Al and Ree's Journey in Peru," "Eat Me! – Food Chain in Shiretoko" and "Lady Liberty is Our House." The first book is about an alpaca, named Al, and a llama, named Ree, visiting their grandmother's house to bring coffee (a popular export product of Peru). On their way, they meet Cactus (a plant that grows in the Andes), Potato (a vegetable originally grew in the Andes and introduced to the world), and the Sun (Incans believed in sun god and held festivals). They become late and come across a ghost, but get back home sound and safe. The information in the brackets was applied from what students learned from the textbook, "CLIL World Heritage sites" in class. Students intentionally created the characters from the information. The second story is about animals living in Shiretoko. First, zooplankton meets phytoplankton and tells how much it is hungry. Then, after thoughts, the phytoplankton offers itself to be eaten by the zooplankton. The same thing happens in between the smaller animals and the bigger ones until a mother bear feeds a sea lion to her cubs. Then the story explains how the "droppings" of the cub nourish the ground and the nutrients flow to the sea, thereby, feeding phytoplankton in the sea of Okhotsk making a food chain. All the characters in the story are the animals which inhibit Shiretoko. The students tried to show how the ecosystem is sustained there. They also discussed carefully how they could introduce a story of a food chain without making children sad. The third group made a story of five dwarves building a house, which represents the Statue of Liberty. In the story, each dwarf makes a part of the statue from the foot to the torch one by one. While building its part, each dwarf takes a certain action related to history, for example, one dwarf cuts the chain at the feet and another lights the torch. In class, students learned that they show freedom and enlightenment, respectively. Students also learned how immigrants to the US were filled with joy when they arrived at the New York harbor after a long and tuff journey. The building of a house in this story represents the new life of the immigrants. In this way, although not explained explicitly, all the three stories incorporated the key features of the Heritage sites. Figure 14 shows the front covers of the three books.

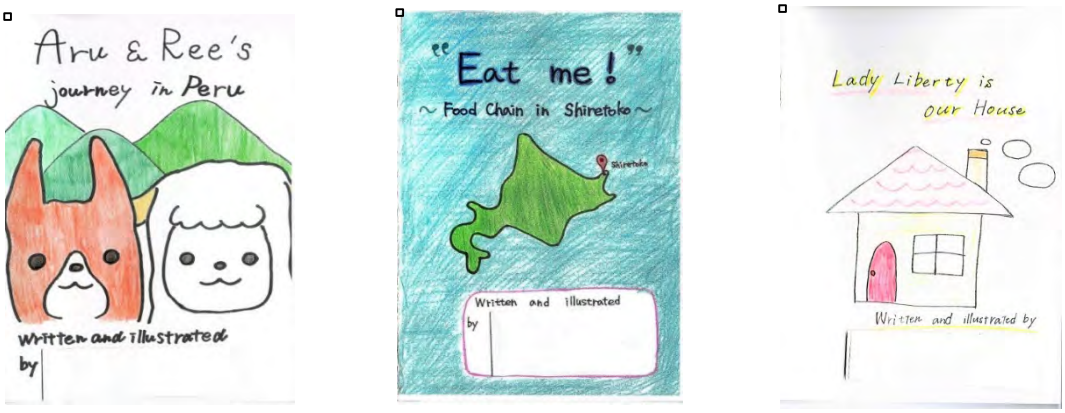


Figure 14 The front cover of the three picture books

5.1.1 Features of the three books

The common features are shown in Table 6. The students made a picture book that followed the style, mode, and the genre of typical story picture books for young children.

Table 6. Common features of the three books

Style	- informal - mostly short sentences - considerable amount of dialogue between the characters in the story
Mode	- illustration and text
Genre	- writing a story easily read for children - illustrating pictures that accompany the story - creating verbal repetitions that children can easily chant - writing direct speeches that made the characters speak in their own voice - reading out a story to children
Format	- handwritten text - pictures colored using pastels, crayons and color pencils
Binding	- A4-size thick sheets of paper stapled through the center-fold - after bound, made into a A5-size booklet

Table 7. The different features of the three books

Title	Al and Ree's Journey in Peru	Eat Me -Food Chain of Shiretoko	Lady Liberty is our House
Setting	Mt. Huayna Picchu in Peru	The Sea of Okhotsk off Shiretoko	Liberty Island in New York
Characters	- Al (an alpaca) - Ree (a llama) - Their mother - Their grandmother - Potato - Cactus - Sun - Ghost	- Phytoplankton - Zooplankton - Salmon - Sea lion - Brown bears	- Red dwarf - Yellow dwarf - Green dwarf - Blue dwarf - Pink dwarf
Total pages (covers excluded)	20 pages	10 pages	18 pages
Repetitions (verbal)	- "Let's go, let's go to grandmother's house." - "Hello, …" - "Where are you going?" - "We're going to grandmother's house." - " Be careful." - "OK, bye."	- "Hi, ... What's up?" - " Eat me." - "Really? Thank you!" - The … is full now. - … meets …	- The … dwarf started to build immediately. - He said, "I will (do) …" - "Good job!"
Repetitions (action)	Al and Ree say hello to the characters they meet on their way. Each time, they are warned to be careful.	Smaller animals meet bigger animals and offer themselves to be fed to others. The bigger animals thank the small animals and become full.	Each dwarf build a part of Lady Liberty. Each dwarf do something related to the historical event of the US Independence.

Heritage features used (in the order of appearance)	- Mt. Huayna Picchu - Peru - alpaca - llama - coffee - cactus - potato - sun	- Sea of Okhotsk - phytoplankton - zooplankton - salmon - sea lion - snow - brown bear - the nutrient flows to the sea - food chain	- Lady Liberty - platform - cut the foot chain - robe - hand plate - carve the number - seven points of the crown - light the torch

The settings, characters, repetitive dialogue and actions differed from each other. They also included some of the typical features of the setting in the story, which are shown in Table 7. Some of the pages are shown in Figure 15. The reason why "Eat Me!" has less pages than the other two books was simply because of the layout. Students used a single page for each scene while in the other two books, students mostly used two pages for a scene.

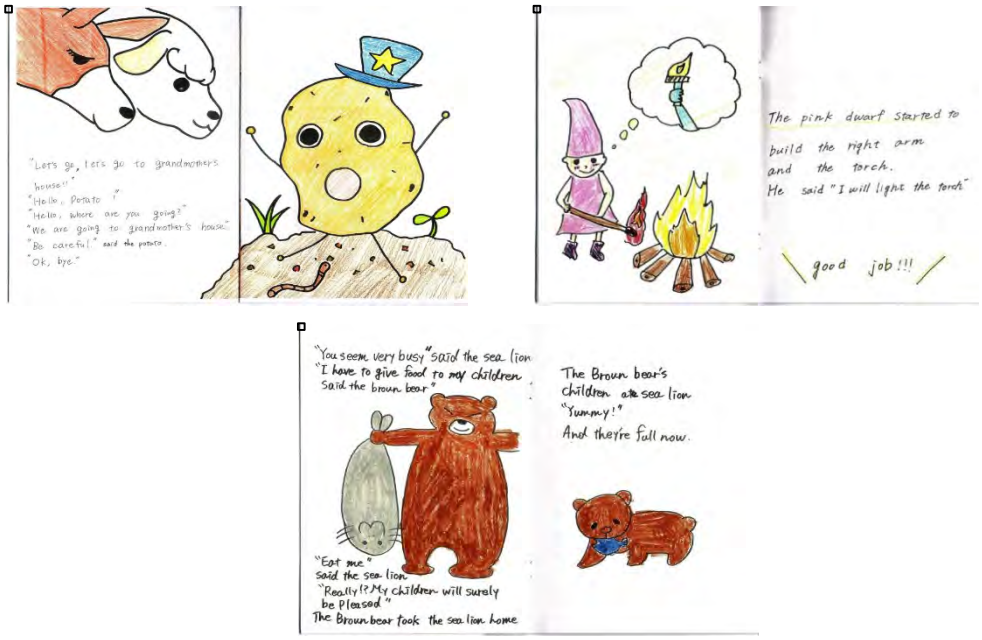


Figure 15. Pages from the books

5.2 Reflections of the students

5.2.1 Themes incorporated in a picture book

After all the pages of the books were bound, the class had a storytelling activity again, where students were divided into four groups. Each group consisted of three students (four in one group) who had created different books from one another. Before their presentations,

students were asked to write down what they wanted young children to learn from the books they had created and why. The questions were asked to clarify the aim of each student beyond the overall aim, which was to introduce World Heritage sites. When students compared fiction with non-fiction picture books in class, they noticed that the former incorporated a certain message to children while the latter mainly provided them with knowledge. The teacher wanted to know if students incorporated any message to children. Figure 16 shows the result. The answers related to the overall aim (e.g. "learn about what kind of animals live in Machu Picchu") were excluded here, and the answers were categorized according to the keywords used by students in their written answers in Japanese, for example, "*tomodachi* (friend)" and "*nakama* (fellow)" were put into the same category, "value friendship." The most common answer was "collaborate with others" followed by "value friendship." These answers demonstrate that students had created individual themes organically, without being instructed to do so.

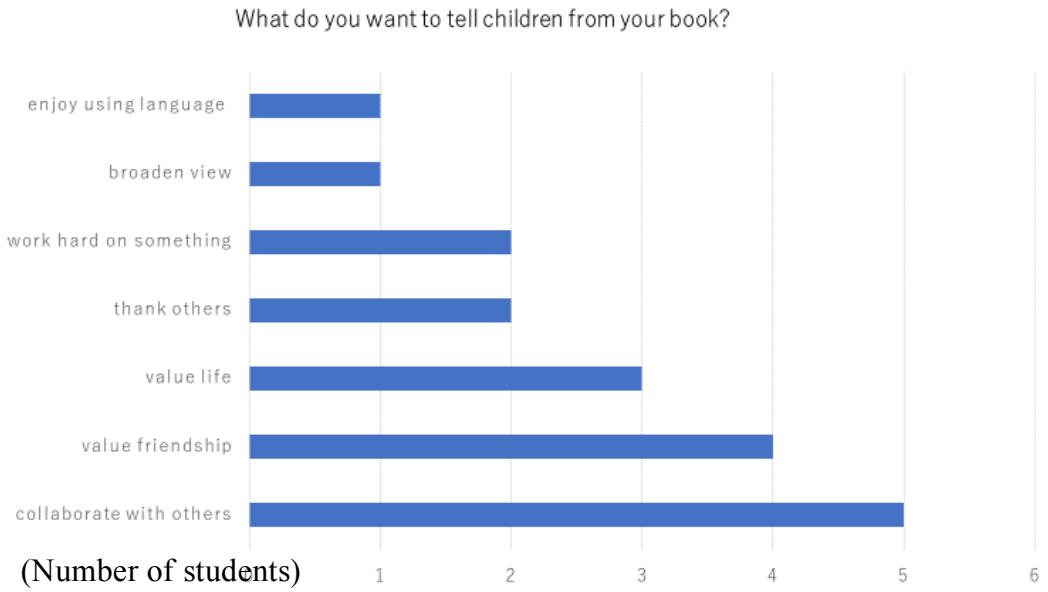


Figure 16 What students want to tell children from their picture books

5.2.2 Questionnaire

After students finished the storytelling activity, they were asked to answer a questionnaire of Likert 5-point scale questions. The questionnaire asked about the three sections of the course, the learning of the World Heritage sites, the analysis of picture books, and the creation of a picture book.

pIn the first section, students were mainly asked how much each of the five tasks helped them in learning English. The five tasks questioned were researching popular sightseeing spots, making a vocabulary list, filling missing words in the dictation test, mind-mapping, and giving a short speech. All of the results were very similar to one another. Of the 13

students, nine to 10 students had an equally positive answer for every task. They stated that the task was “very helpful” or “helpful” in learning English, while one or two students always had a negative answer, stating that it was “not helpful”. The remainder of the students answered that the tasks were “neither helpful nor unhelpful.” However, when students were asked which of the five tasks they thought were the most interesting and the most difficult to carry out, the results were unexpected. While six students felt the “research” task was the most interesting one of all, five students felt the same task was the most difficult. The reasons for the positive answers were that they were able to find information according to their interest and found it fun to discover new ideas on their own. On the other hand, the reason for facing difficulties was that they felt they lacked English vocabulary and expressions necessary to explain their findings clearly.

In the second section, where they were asked about how the analysis of the picture books had been helpful to their major, all of the students gave a positive response. They felt that the selection of picture books was “very appropriate” or “appropriate”, and the analysis was “very useful” or “useful.”

In the third section, students were asked about making picture books. They were asked how satisfied or dissatisfied they were with the storyline, the illustration, and the English sentences in their individual works. The results showed that most of the students were “very satisfied” or “satisfied” with both the storyline and the illustration, however, in terms of English sentences used in the book, there were more students who were unsure about their level of satisfaction. Nine students were satisfied, but three students were unable to decide and one student was dissatisfied. A similar result was shown when students were asked whether the overall picture book “making” and “reading aloud” activity was useful or not for enhancing their English skills. The majority (eight students) gave positive answers while three students were unsure and one student felt it wasn’t useful. When asked whether the same overall “making” and “reading aloud” activity was useful to their major, eight students gave a positive response, while five students were unsure. There were no negative answers here. The reason why some of the students were unsure about their use of English could be that as mentioned earlier, there were a few students who complained about how difficult it was for them to construct sentences correctly throughout the course. These students often depended greatly on other students in completing the sentences used in the picture books. Therefore, their level of satisfaction in the language might have been low. The question of whether the activity was useful to their major will be discussed later. (See 5.3 Discussion.)

5.2.3 Free discussion time

After answering the questionnaire, the students had a free discussion time in their L1 on the picture books. Some students pointed out that some of the sentences in “Eat Me!” were difficult for children to understand, since the book explained the ecosystem of the food chain.

There were also some negative opinions to the same book that the concept was scary. One student told hesitantly that she thought the idea of feeding oneself to others to show kindness was "*saikopasu*," meaning "psychopathic," and some of the students nodded in agreement. The group that created the book considered this carefully and made the book, but some doubts may have remained in their storyline.

5.3 Discussion

Students' reflections on the course have raised awareness of the need to involve either children or a childcare professional in order to evaluate their work. First, some students were unsure whether making the picture books was useful for enhancing both their English skills and for their major. As their picture books were intended to read out to children, their speaking skills might be developed after reading out many times to children and interacting with them. Moreover, the usefulness of the activity in their major would be confirmed only after seeing the reaction of the children. Second, in terms of the doubts remained in the storyline, there would be different aspects toward it. Kawabata maintains that "the survival of the fittest', "cruelty and nonsense" are one of the elements of children's literature seen in for example, the story of "Peter Rabbit" as well as "Peter Pan" (2017: 19). Thus, in order to make students evaluate how well their materials work on children, the scope of the course should be expanded. That is, to make the material be evaluated outside class. Participating some activities outside class, for example, an event where students have a chance to read out their books to local children is suggested. This would lead students to be able to evaluate their work further. Another suggestion is that instructors in their majors could give feedback to their work from a childcare professional point of view. With departmental support, the CLIL approach may reach its full potential. As language and subject cannot be separated, the collaboration of teachers of language and those of the department can react in a positive way in order to help students reflect and experiment their learning.

6. Conclusion

In this paper, the study of cross-curriculum learning under a CLIL approach was introduced. The approach enhanced students' learning of World Heritage sites and that of picture books while they developed their English skills. Using what they have learned, they created picture books for young children in an appropriate form. The next step would be applying the material to children, however, this is out of the scope of an English class. Therefore, departmental support is needed in order to make their learning reach its full potential.

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Developing CLIL Programs and Materials Based on A Needs Analysis: a Case Study of Dietary Education in Japan

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Abstract
Japanese society has been internationalized, and the number of English-speaking long-term residents has increased accordingly; dietary education enabling them to maintain healthy lifestyles has rarely been considered, due to a lack of guidelines for English-language education of dietetics practitioners. A nationwide research project conducted from 2011 to 2013, entitled "ESP for the training of nutritionists who will contribute to the internationalization of local communities: needs analysis and teaching materials development," revealed a misunderstanding between content and language teachers regarding the targets of English education. According to the results of the research project, the author designed CLIL programs and materials for Japanese-style dietetic education (shokuiku) as an EFL teacher in collaboration with content teachers. Based on longitudinal classroom observations and interviews with content teachers, the following keys to successful development of CLIL programs, an area with few precedent examples, were identified: 1) conducting ongoing needs analysis, 2) building consensus among CLIL program stakeholders, and 3) raising students' awareness of the need for English in their future workplaces.

Keywords: CLIL, needs analysis, materials development, program development, teacher collaboration

1. Introduction

The aim of this paper is to reflect on the process of development for CLIL programs and materials for dietetic education, which are critical for healthier lifestyles, and share ideas about what CLIL teachers can do to develop a new program, using a case study approach. The paper consists of seven parts: 1) National research project on ESP for dietetics students, 2) Tendencies of dietetics students from the CLIL perspective, 3) Needs analysis, 4) Can-Do list and activities for food education CLIL classes, 5) Authenticity in CLIL material development, 6) Teacher collaboration to design better CLIL programs, 7) Recommendations for designing new CLIL programs in EFL settings.

Since 2007, the author has taught English for dietetics majors as a tenured faculty member in a dietetics department. Because guidelines regarding foreign-language education for

dietetics students in and outside of Japan did not exist, the author, as the only decision-maker for the EFL programs, developed the English course and materials from scratch. Based on experience teaching 1,500 dietetics major students, a national survey targeting university/junior college dietetics training in Japan, and a needs analysis involving employers and content teachers, the author experimentally implemented a CLIL program. CLIL is observed to be the most desirable approaches for preparing to provide shokuiku, or Japanese-style dietetic education, in globalized local communities. As vocation-oriented majors, not all students take English exams and thus their levels of English vary. While some students appear confident in their ability to express themselves in English, many students tend to show anxiety in class, perhaps owing to a fear of making mistakes. This may be due to the fact that English for General Purposes (EGP) course books only focus on the English language, and not the contents in which students are majoring. However, through CLIL, students can proactively learn about dietetics and food culture, regardless of their English competency. CLIL activities makes students aware of the language skills that will be needed in their future workplaces, such as nursey schools, hospitals, care homes, food industries, and research institutions.

Unlike those for engineering, medicine, or tourism, English programs for dietetics are rarely studied in Japan. This is likely because no full-time and/or tenured EFL teachers are employed in Japanese dietetics departments. Additionally, even if faculty members recognize the increasing need for English language skills among dietitians, the fullness of the department's curriculum leaves no leeway for the introduction of satisfactory practical English education.

Before introducing the CLIL approach, being unfamiliar with the contents of students' major curriculums, the author employed typical English for General Purposes (EGP) textbooks from an international ESL publisher for large-sized, mixed-level classrooms; however, neither the teacher (author) nor the students were satisfied by these materials, as the focus of the English learning did not align with students' wants. Dietetics majors are fairly career-focused, and thus many were uninterested in studying English conversation irrelevant to their future needs. Therefore, a needs analysis based on collaboration with content teachers was critical for motivating learners.

2. National research project on ESP for dietetics students

After taking the position of EFL lecturer in the department of dietetics, the author began to hold frequent, informal needs analysis meetings with content teachers, such as those in the dietetic, culinary, and agricultural fields. As a result, and after having noted huge discrepancies in attitude toward English education between content teachers specializing in dietetics and general English language teachers, the author undertook a nationwide research project using a questionnaire targeting dietetics training institutes in Japan. This national

research project, supported by KAKENHI no. 43520736, was conducted from 2011 to 2013 under the title "ESP for the training of nutritionists who will contribute to the internationalization of local communities: needs analysis and teaching materials development" (Tsuda, 2014).

Per the Japan Dietetic Association (2018), the survey targeted 300 nutritional/dietitian training institutions in Japan; a total of 139 responses (46% response rate) were received and analyzed. Because the decision-makers regarding foreign-language curriculums in Japanese higher education are usually Japanese faculty members, the questionnaire was written in Japanese and all respondents were Japanese. Among the respondents, 38 (27.3%) were English teachers, 97 (69.8%) were content teachers, and 4 (2.9%) held other positions. As of 2011, only 58 (38.1%) of the institutions surveyed had introduced English for Specific Purposes (ESP) education for dietetics students.

Differences of opinion regarding the goals of English education were clear between content teachers and English teachers (Table 1); whereas the majority of content teachers considered ESP (specifically English for dietetics) most important, English teachers considered both English for General Purposes (EGP; both liberal arts and English conversation education) and ESP (for dietetics) to be major targets. Content teachers also regarded English for Academic Purposes (EAP; academic reading and writing) to be of importance.

Table 1. Goals of English education for dietetics students

	Content Teachers	English Teachers	Others
Remedial	26 (26.8%)	24 (63.2%)	1 (25.0%)
English as Liberal Arts	44 (45.4%)	29 (76.3%)	2 (50.0%)
English Conversation	41 (42.3%)	17 (44.7%)	2 (50.0%)
Academic Reading	68 (70.1%)	19 (50.0%)	2 (50.0%)
Academic Writing	20 (20.6%)	4 (10.5%)	1 (25.0%)
Test Taking	6 (6.2%)	7 (18.4%)	0 (0.0%)
Cross-cultural Understanding	26 (26.8%)	18 (47.4%)	0 (0.0%)
English for Dietetics	80 (82.5%)	29 (76.3%)	2 (50.0%)
English for Cooking	44 (45.4%)	21 (55.3%)	2 (50.0%)
Others	7 (7.2%)	6 (15.8%)	0 (0.0%)
Total	97 (100.0%)	38 (100.0%)	4 (100.0%)

Answers to the open-ended question "Please freely write your opinion, if any, about English education in your institution" can be categorized as follows:

- Students' academic performance in English has declined (17 respondents: 10 content

teachers, 7 English teachers)

- English has been taught as a liberal arts subject (10 respondents: 4 content teachers, 6 English teachers)
- The current curriculum of dietetics training institutions prevents development of more substantial English education (8 respondents: 7 content teachers, 1 university employee)
- Students need more general English skills (6 respondents: 3 content teachers, 3 English teachers)
- Japanese dietitians should be more globalized (5 respondents: 4 content teachers, 1 English teacher)
- Japanese dietetics students lack necessary English skills (4 respondents: 3 content teachers, 1 English teacher)
- There is no consensus about English education among teachers (2 respondents: 2 content teachers)
- Dietetics students need English reading skills to read academic papers and references (2 respondents: 2 content teachers)
- Dietetics students lack Japanese (first language) academic skills (2 respondents: 2 content teachers)
- English skills are required for communication (2 respondents: 1 content teacher, 1 English teacher)
- English skills are required to collect information from the Internet (2 respondents: 2 English teachers)
- Japanese dietitians do not use English in their workplaces (2 respondents: 2 English teachers)

The research results suggested that due to the lack of guidelines for developing English programs for dietetics, most English teachers who teach dietetics students are less informed about the contents of the dietetics curriculum and students' current and future needs. In general, English teachers appeared to underestimate "the English language needs of workplaces," although they identified "dietary counseling" as the central job of a dietitian. Students must study diligently to become effective dietetics counselors in local communities, which will continue to grow more internationalized with national policy welcoming immigrants and international students.

3. Tendencies of dietetics students from the CLIL perspective

Over 20 years of experience teaching university students in various departments, including engineering, economics, literature, and law, the author has observed that dietetics students have a distinct character as English language learners, and that the class design is well suited to the CLIL approach based on dietetics students' strengths and weaknesses as language learners' strengths

First, dietetics students approach pair and group activities positively, given their considerable experience collaborating in laboratory work and cookery lessons. Once teachers introduce the goals of the activities, students communicate, help their partners/group members, and easily build learning communities. Additionally, students show little resistance to student-centered classrooms, which are an unconventional learning style in Japan in comparison to lecture-style classrooms. In other Japanese university departments, where lecture-style classes dominate, some of students might hesitate to participate in group activities, considering them childish.

Second, dietetics students are generally goal-oriented and hardworking; their department presents their career goals clearly and provides food service internships in schools, hospitals, and company cafeterias. Through such internships, students interact with future role models and recognize that what they are learning will be practically useful in their future workplaces. Therefore, if CLIL programs and materials are introduced based on students' needs, they will learn more willingly and become better communicators.

Third, dietetics students are keen to study contents related to their majors, including dietary education, food science, biochemistry, food hygiene, and culinary arts. To become registered dietitians, students must pass national exams in their fourth year, prior to their graduation, and they must thus focus on preparing for these exams in addition to their internships and job hunting. Because required subjects fill their curriculum fully from entry to graduation, institutions cannot allot numerous curriculum hours for foreign-language subjects, even if the students and content teachers recognize its importance, particularly the lingua franca of English. Therefore, CLIL, which exposes students to the target language and contents simultaneously, is a reasonable approach.

Fourth, dietetics students demonstrate strong interest in food culture, especially Japanese cuisine, and are positive toward the Japanese food education taught through Japan's unique school lunch systems. The topic of food is culturally specific, and as our communities accept immigrants and grow more globalized, dietetics students must be able to communicate in English, promoting healthier eating styles while accommodating the newcomers' diversity in food culture. Therefore, as future leaders of food education, students should learn about food culture before their service.

Weaknesses

As shown by the results of the national survey, English proficiency levels have declined, and a huge discrepancy exists between the proficiency of high and low achievers in English. In the author's teaching settings, student evaluations are conducted at the end of every term, and feedback regarding English courses has always been sharply divided into two opinions,

either “the level was too high for me” or “the level was too low for me.” This tendency has remained unchanged.

Like other mainstream private universities, the author’s institution holds three types of entrance examinations: (1) general entrance examinations, which require academic written tests; (2) recommended admission tests, which require group interviews, essay writing, recommendations, and academic transcripts; and (3) tests for mature students, which require individual interviews, essay writing, and academic transcripts. Typically, students who pass the general examinations excel in academia ~~academics~~ and attend high schools that focus on English as an important academic subject, whereas those who pass recommended admission tests often attend technical high schools, like agricultural, commerce, and culinary high schools, which emphasize vocational skills and do not dedicate considerably time to teaching English as a subject.

When introducing the CLIL approach, classroom activities should be designed with the gaps in students’ English proficiency in mind. For example, students may not have learned English terms for basic dietetics vocabulary, such as “carbohydrate,” “diabetes,” “obesity,” “malnutrition,” and “food hygiene.” Vocabulary activities could be included in the CLIL approach at an earlier stage to prevent any students from feeling inferior to their peers. Additionally, vocabulary activities in the CLIL approach can strengthen cognitive skill, helping students learn how to learn.

Another weakness of dietetics students is their passivity regarding oral presentations. In Japanese universities, dietetics majors are predominantly women. It is unclear whether this is related to their communication style, but the author has observed that dietetics students, even those with good rote memory and higher English proficiency test scores, are hesitant to give oral presentations in English and try to avoid standing out from others. More detailed research should be done to examine the communication styles and tendencies of dietetics students, including their group mentality. A student-centered CLIL approach may help familiarize dietetics students with expressing themselves in front of an audience and increase their confidence in oral presentations.

4. Needs analysis

Far from being confined to simply designing school lunch menus and providing nutritional advice to schoolchildren and parents, the roles of dietitians have diversified year after ~~over~~ year. Because the future needs of individual students will differ according to their workplace, a needs analysis was conducted to design a program more practically able to satisfy students’ needs for both English language and content learning. Nation (2013) lists three factors in needs analysis: lacks (what do the learners know?), necessities (what do they need to know?), and wants (what do they want to know?). Needs analysis tools for dietetics students are

illustrated in Table 2.

Table 2. Needs analysis of ESP for dietetics students (adapted from Nation, 2013: 132)

Questions	Tools
Lacks (what do the learners know?) Are students familiar with the technical vocabulary of their field in English? How well can students write?	Check students' knowledge of technical vocabulary from dietetics and cooking Have students watch food-related movies and write about their opinions. Have students translate recipes from Japanese to English.
Necessities (what do they need to know?) How are students expected to use English in their specialty? How important are each of the skills of listening, speaking, reading, and writing?	Consult the following: 1. Content teachers and graduate students in fields including dietetics, culinary arts, and biochemistry 2. Future employers and coworkers, including head teachers of nursery schools and dietitians in companies and hospitals Attend international dietetics conferences. Read dietetics textbooks and recipes in English. Ask foreign teachers and international students what problems they face due to language barriers regarding food/eating habits in Japan.
Wants (what do they want to know?)	Have students write what English they need to use in their workplaces and how.

Students' future workplaces include schools, clinical settings, businesses, academic settings, and volunteerism in developing countries. For example, some will become food industry researchers and others will continue their study in graduate school; they must thus be able to read and contribute to international journals in English. Under a system newly established in 2005, "nutrition teachers" are employed in primary and secondary schools across Japan. Additionally, head teachers of local nursery schools where dietetics students complete internships, as well as hospital administration staff, reported that foreign pupils and their parents, whose Japanese skills are very limited, often experience difficulty in consuming Japanese diets. Dietitians with English proficiency and intercultural competence will thus be needed in schools and hospitals to help such individuals develop a healthy eating style.

Based on the needs analysis, the future needs of dietetics students can be categorized by workplace field, as follows:

• Medical facilities, including hospitals: To provide nutritional guidance to clients who understand English but have limited knowledge of Japanese language and food culture. To explain food services, menus, and ingredients.

- Educational settings, including nursery schools, kindergartens, and primary and secondary schools: To explain school lunch menus, ingredients, eating habits, and food culture in Japan to pupils and their parents/guardians. As nutrition teachers, to design and provide shokuiku classes in English, collaborating with Japanese classroom teachers and assistant language teachers.
- Company cafeterias: To explain food service menus and ingredients to employees from overseas.
- Local communities: To design shokuiku classes in English for foreign residents and international students, to familiarize them with the local communities and promote healthy eating habits.
- Graduate schools and food industry research facilities: To read and write articles in English. To give presentations at international conferences and communicate with international researchers.

To prepare for globalized communities, future dietitians should understand their specialty in English and improve their intercultural knowledge and skills in English as a lingua franca.

According to Coyle's (1999) "4Cs," a successful CLIL class should include the following four elements: Culture, Content, Communication, Cognitive Skills. Based on the needs analysis of dietetics students, CLIL is a suitable approach, as it is able to include the four elements as follows:

- **Culture:** Gain familiarity with global cuisines and eating habits, including local specialties, and obtain basic knowledge and information about religious and cultural dietary restrictions
- **Content:** Learn about healthy eating habits, food allergies, and foodborne illnesses
- **Communication:** Improve communication competency through oral presentations, pair work, and group work
- **Cognitive Skills:** Improve foreign language learning skill through various tasks and projects in CLIL classrooms by fostering learners higher order thinking skills

5. Can-Do list and activities for food education CLIL classes

To satisfy the language needs of students' future workplaces, particularly those in medical, educational, business, and local community settings, the author, in cooperation with content teachers, introduced a CLIL approach for second-year students in the "English for dietetics" course. This elective course consists of 15 weekly lessons from April to August and is followed by a one-week internship in nursery schools, hospitals, company cafeterias, and

elder care facilities. As in the majority of Japanese higher education cases, because all subjects are taught in students' first language (Japanese), textbooks are written in Japanese, all faculty members are Japanese speakers, and departments have no international students, soft-CLIL taught by language teachers as part of a language course was identified as a reasonable approach. Considering the variation in students' competency levels and the limited time of lessons, despite the relatively high motivation of students taking the course, the following "Can-Do list" was prepared to present course goals in the syllabus:

- Speaking: Speak about the healthy eating habits of one's own country or region (in pairs and groups)
- Listening: Understand cooking shows in English; understand lectures about the food culture of foreign countries
- Reading: Read simple recipes in English
- Writing: Write simple recipes in English; write a food walking tour of one's hometown in English
- Vocabulary: Use basic nutrition terminology, including ingredient names (vegetables, meats, seafood, and condiments) and cooking methods (essential verbs for cooking)

In the national survey, content teachers identified EAP, such as academic writing and reading, as a suitable target for dietetics students. For a course targeting students who are preparing to enter the research field and/or senior and graduate students, either hard-CLIL taught by subject-specific teachers in a foreign language as part of a subject course, or team-teaching delivered by content and language teachers, would be more desirable.

Along with the "Can-Do" list, the following course goal was set: "To train global-minded dietitians, providing plenty of opportunities to learn about healthier eating styles and food culture through English classes." Thus far, three end-of-term projects have been assigned:

- **Recipe writing contest:** Content teachers determine themes, such as "recipes for diabetes" and "dishes rich ~~high~~ in vegetables." Judges include content teachers (cooking and dietetics teachers) and EFL teachers (one Japanese and one Canadian), who evaluate recipes based on language usage and content.
- **Group presentation:** To show achievement at the end of the term, groups of four to five students prepare 15-minute presentations on the general topic of "Introducing Japanese nutrition science, food education, and/or food culture to English-speaking foreign residents." Following the presentations, students assess each other on fluency, accuracy, eye contact, and visual aids (slides and handouts).
- **Special guest speaker sessions on food culture**: English speakers from various countries, such as the USA, Canada, Iran, Nepal, Egypt, and Indonesia, who live in the local community as university lecturers, international students, and diplomats, are invited to talk about their food culture and eating habits to raise students' awareness regarding their future use of English as a lingua franca in their workplaces.

6. Authenticity in CLIL material development

Tomlinson (1998) claims, from the perspective of second-language acquisition research, that "Materials should expose the learners to language in authentic use" (p. 13); CLIL materials should also be as authentic as possible. Authentic CLIL materials motivate learners and raise their awareness of the actual use of the language in context.

Food and nutrition is a popular topic in CLIL, and CLIL worksheets designed for food education in North American and European countries are readily available, especially for younger learners. However, these cannot be applied in Japanese higher education because food and eating habits are culturally specific, in many cases the worksheets are unsuitable for the maturity of college students, and occasionally it is doubtful whether the worksheets were designed with the input of nutrition specialists.

Based on the nationwide survey project, a bilingual (Japanese and English) recipe book, Recipes of Fukuoka (Tsuda, 2011), was developed as a practical English-learning resource, in cooperation with senior culinary professors. The book uses only local ingredients because Japanese recipe books published in other areas are not suitable for dietitians serving as local leaders of shokuiku in Fukuoka prefecture. Japanese dishes vary in cooking methods, ingredients, seasonings, and presentation depending on area or region. In addition, the policies of "local production for local consumption" and "food mileage" require dietitians to design school lunch menus using local ingredients.

A bilingual "cooking show" was also developed and recorded by the author (a Japanese English teacher), a Canadian English teacher, and culinary professors. The show, which was dubbed into English, demonstrated how to cook chicken nanban, a delicacy of the Kyushu area of Miyazaki prefecture. Video clips were used for dictation activities and role-plays among students. Being developed through collaboration between a Japanese English teacher, a native English teacher, and content teachers, these materials maintain authenticity in both content and language. EFL teachers thus learn the kinds of expressions food industry professionals truly need to know, and the necessary terminology in both English and Japanese. By producing video clips personally, CLIL teachers gain confidence in teaching. Students themselves also showed more interest in watching the video clips, because the cooking lesson was exactly the same as their class in Japanese and was performed by their own teachers in their kitchen studio, increasing students' familiarity with the subjects. As an optional activity, students were encouraged to form groups and record cooking shows in English. Although their English proficiency varied, they attempted to convey in English how to cook Japanese dishes, increasing their confidence in communicating in English.

7. Teacher collaboration to design better CLIL programs

When EFL teachers must design CLIL programs and materials for the first time, they tend

to rely on nonexpert intuition rather than needs analysis. Allowing a content teacher to observe the EFL classroom or reading content-specific textbooks could be good resources for CLIL programs. If EFL teachers receive support from content teachers and students' future employers, their programs will better satisfy students' future needs. Figure 1 illustrates the flow of teacher collaboration for CLIL program development, implemented by the author based on collaboration between language and content teachers.

1. Needs Analysis	Interviews with content teachers Classroom observation Surveys and questionnaires for teachers Collection of content textbooks
↓	
2. Curriculum Development	Interviews with content teachers Classroom observation Mutual review of syllabi by content teachers and EFL teachers
↓	
3. CLIL Materials Development	Co-authoring of materials by language teachers and content teachers, including EFL teachers and native English teachers
↓	
4. Curriculum Implementation	Mutual classroom visits
↓	
5. Student Assessment	Co-assessment by EFL teachers and content teachers
↓	
6. Course Evaluation	Classroom observation by content teachers Analysis of student evaluations

Figure 1. Teacher collaboration for developing CLIL programs

CLIL teachers in European countries are usually subject teachers with high proficiency in foreign languages, or language teachers with another specialty/major. However, in Japan, an EFL country in Asia, Japanese English teachers and EFL teachers play more prominent roles in introducing CLIL and designing English programs and materials. Japanese teachers, themselves EFL users, have the following advantages as CLIL teachers:

- EFL teachers can be good role models for students as foreign language learners. Students learn from their CLIL teachers on how to study a new field.
- EFL teachers are proficient in both the native language and English and are more

informed about the educational systems and local cultural customs, so they are more able to conduct an effective needs analysis, especially through interviews.

- EFL teachers can serve as bridges between content teachers and native English teachers because they understand both culture patterns. EFL teachers can be fair to both sides and suggest effective solutions. These are the keys to success for newly developed CLIL programs in higher education in an EFL country.

8. Recommendations for designing new CLIL programs in EFL settings

This case study concludes by suggesting three keys to success in developing CLIL programs in universities in EFL countries, where English is not a daily language and students and content teachers have fewer opportunities for exposure to English than in ESL settings. These keys are crucial, and are especially important for the language teachers who bear responsibility for the programs.

Key 1: Conducting ongoing needs analysis of the subject and language

The national survey showed that EFL teachers often misunderstand English language needs. CLIL programs designed by language teachers under such circumstances would be considered irrelevant by content teachers. Needs analysis for CLIL programs can be conducted using various procedures, including interviews, questionnaires and classroom observations. Long (2005) states that a triangulation of sources and/or method of needs analysis is crucial. Table 3 shows potential questions to use when surveying present and future needs in higher education EFL settings before designing a CLIL approach.

Table 3. Sample questions to survey present and future needs

Needs	Questions
Present	Do students take some subjects taught in English only? If so, how much language support is provided?
	Are classes a mix of Japanese and international students? If so, is the dominant language English or Japanese?
	Does the department focus on study abroad programs? If so, do the programs focus only on language, or do they incorporate activities related to students' major?
	In job hunting, will students need to show their English proficiency level?
Future	What English language skills will be required in students' future workplaces?
	How often will students communicate with coworkers and/or clients in English in their future workplaces?

	To keep up with the trends of their profession as global-minded citizens, what resources will be most useful? (Internet news, TV news, journals, news magazines, etc.)

Key 2: Building consensus between content and language teachers

To successfully implement a CLIL program, consensus building among content teachers and language teachers is crucial. Richards and Farrell (2005) list various methods of professional development for language teachers. In particular, teacher support groups, peer observation and coaching, and team teaching can be adapted for CLIL teachers:

Teacher support groups

- Review of and reflection on teaching
- Materials development

Peer observation and coaching

- Peer feedback on classroom visits
- Reflection on classroom activities and syllabi

Team teaching

- Preparation of classroom activities considering both content and language
- Role-plays by content teachers and language teachers
- Dual assessment of content and language

Because cases of CLIL in Japanese higher education are not highly visible, time should be taken to ensure the support of stakeholders, such as faculty members, administrative staff, and employers of dietitians, by giving presentations in faculty/staff development meetings and conducting joint research projects with content teachers and language teachers.

Key 3: Raising students' awareness of the need for English language skills in their future workplaces

According to Long (2015), "For obvious reasons, pre-experience learners will usually constitute unreliable sources, even when highly educated." Most Japanese colleges conduct course evaluations at the end of a course. These are thought to be a rich resource for reflection on and improvement of the course; however, it is said that many students are tired of simply responding to questionnaires for all subjects they take in a term. Therefore, such questionnaires tell us little about what students truly want to learn or what they truly need to satisfy their future English needs. Additionally, students are unaware of the need for a command of English in their future workplaces. Most Japanese English learners can "survive" each day, on and off campus, without using English, and thus do not recognize their future language needs. Because their English language needs are not obvious, their goals for English learning tend to be unrealistic, such as "native-like fluency in English" and "ability to comprehend English movies without subtitles," regardless of their current proficiency

level.

To raise students' awareness of their English language needs in the CLIL program implemented for dietetics students, native English college teachers and English-speaking international students from European and Asian countries were invited to give presentations as guest speakers, such as "Canadian food culture" and "My mother's recipes." If Japanese English teachers are hesitant to implement CLIL using the direct method throughout an entire term, ad-hoc CLIL activities can be designed as special events with English speakers, and CLIL programs can be partially introduced by developing authentic worksheets through collaboration with guest speakers and content teachers. After conducting classroom observations, teachers can introduce such programs smoothly.

9. Conclusion

In conclusion, the CLIL project case described here faced few critical incidents. The author received consistent support from fellow teachers, both content teachers and native English teachers, and from students themselves. Two future projects are proposed: (1) Collaboration of CLIL teachers from higher education institutions, such as EFL teachers, dietetics professors, and culinary teachers, and from secondary schools, such as nutrition education, home economics, science, and English teachers; (2) International CLIL collaboration among dietetics/culinary departments through exchange of activities for future implementation.

Acknowledgments

This paper is based on over 10 years of collaboration between the author, fellow teachers and graduates of Nakamura Gakuen University, Fukuoka, and graduates' employers. The research project entitled "CLIL program and materials development for educating professionals in food industries contributing to globalized communities" was supported by a grant from Nakamura Gakuen (academic year 2017-2018).

Notes

1. "EFL teachers" in Japan generally refers to Japanese English teachers.

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From Foundation Course to Text Book: introducing CLIL in a Japanese University

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Abstract
In this paper, we discuss the development and implementation of a three-year coordinated compulsory CLIL course in the culture and history of English-speaking countries at a mid-level Japanese university. The course was initially designed to tackle two challenges: first, first year students typically arrive with a striking lack of knowledge of English-speaking countries, including geography and history; and second, students' English ability level is usually much below that needed for university-level content instruction. We discuss the philosophy of content selection, whereby students study ostensibly highly accessible topics ("Baseball" or "Easter") that provide opportunities for more academic material (the rise of US power in the Pacific, Christian ethics). We consider the learning curve of our increasing success in managing the process of frequent student-researched poster presentations. We also look at student resistance to CLIL and the issue of L1 usage in the classroom. We consider how well the initial foundation approach has served to support students in subsequent years of the course, and how far we achieved the "four Cs" criteria suggested by Coyle, Hood and Marsh (2010). Finally, we discuss our recent experience of formally publishing textbooks based on these courses.

Keywords: CLIL, coordinated course, content selection, student-researched poster presentations and student resistance

1. Introduction

Directly teaching a second or foreign language can sometimes be tiresome to both teacher and students. Thus, any way of enabling learners to learn it without needing to explicitly teach it to them can be very useful and motivating. CLIL, which stands for Content and Language Integrated Learning, has recently become popular with teachers and educators from Europe, where the term was coined in the early 1990s, to different parts of the world. Indeed, although CLIL as a term was coined in 1994 by Professor David Marsh of the University of Jyväskylä in Finland (Ioannou-Georgiou & Pavlou, 2011), teaching content subjects to learners in their second or foreign language has been going on for a long a time. In the former British colonies in Africa and elsewhere, for instance, the policy of the British imposing English on their colonial subjects as the medium of instruction for all other subjects could have made all the difference between the 'Outer' and the 'expanding' circles

in Kachru's Three-circle Model of English (Kachru, 1985). In the 'Outer' circle, where core content subjects are learned in English, it has "become part of a country's chief institutions, and plays an important 'second language' role in a multilingual setting" (Rajadurai, 2005). In the 'Expanding' circle, on the other hand, English is rarely, or never, used as a tool for learning content subjects. It is taught as a 'foreign' language and as the most useful vehicle of international communication, but it is rarely part of the country's chief institutions.

Whether the focus is on the content subject (physics, history, mathematics etc …) or on the target language, "in essence, CLIL is about killing two birds with one stone" (Pinner, 2013). In CLIL, students learn non-language-related content as well as improve language skills".

Given its dual purpose, it should be noted that CLIL is more than simply the transmission of knowledge in a second language. It requires acquisition and meaningful use of the second language, as well as analytical skills for assessing content. A commonly cited framework is the four Cs (Coyle, Hood and Marsh, 2010): Content, Communication, Cognition, and Culture. The framework emphasises learning not only the subject matter and appropriate vocabulary and expressions, but their active use involving appropriate higher order thinking skills as well as intercultural awareness.

This paper discusses the development and implementation of a three-year coordinated compulsory CLIL course in the culture and history of English-speaking countries. We first look at the initial foundation approach, which was designed to tackle two issues regarding student knowledge and language ability. We discuss the philosophy of content selection, and consider how well the initial foundation approach has served to support students in subsequent years of the course, where they are presented with increasingly complex cultural and historical issues. We look at the learning curve of our increasing success in managing the process of frequent student-researched poster presentations. These presentations are the climax of 2-3 weeks of listening to, reading and talking about teacher-selected class examples, and through their research and poster preparation, students manage to make personal connections to countries and cultural-historical issues of their own choice. We also look at the challenges, mainly student resistance to CLIL, that is, their failure to grasp its authenticity as well as the fact that the course is as much a content as a language course, as well as how well we meet the four Cs framework for CLIL outlined in Coyle, Hood and Marsh (2010). Finally, we discuss our recent experience of formally publishing textbooks based on the first- and second-year courses.

1.1 Origins and Design: Organizational context

Aichi Gakuin University is a large private university, founded in 1883 as a Buddhist college, and chartered as a university in 1953. It has 12 faculties including the Faculty of Letters, of which the Department of English Language and Cultures (英語英米文化学科) is part. Until

2015, this was called the Department of International Culture (国際文化学科). The department had had its English teaching programme spun off into a new Department of Global English (グローバル英語学科) back in 2008, and in 2014 it reoriented to the cultures of English-speaking countries (英語圏) with an increased focus on English language instruction. Until then it had only Japanese teaching full-time staff and only a limited focus on English. The Japanese staff are broadly divided between sociology and culture, and language specialists. However, two full-time native language teachers (外国人教師) were hired on a permanent basis in 2012 and in 2014. They were tasked with developing two main courses: one, Oral Communication, covering two years and focusing on developing students' communication skills; the other, Culture through English, covering three years and focusing on studying content in English. The latter course and the main focus of this paper, therefore, has two aims, improving language (the ability to study and research cultural issues in English) and improving cultural knowledge.

The academic year entry in the department is between 110 &130 students, and the average 1st year TOEIC IP score is 380. Students in the first year are divided into levels A-E according to a placement test they take on entry, and subsequent levels through the fall semester to the 3rd year are determined according to TOEIC scores.

Before 2015, students had four compulsory English classes a week: Oral Communication and TOEIC provided at the department, and Speaking and Reading provided at the General Education and Liberal Studies Division (教養部). Other elective courses were available especially at the general education level. With the new Department of English Language and Cultures, students have more and longer exposure to English with an additional year for Culture through English. The compulsory three-year course teaching culture in English fits well with the Japanese Education Ministry's desire for more English-language medium instruction. Students also have more compulsory choices between Extensive Reading, Business English and Learning English with Movies at the department level. All these Native English teacher courses are delegated to and coordinated by the two foreign teachers.

1.2 Origins and Design: Course Aims

The focus in the design of the course was originally (and is continually) on both the subject matter and the target language. The content is focused on the cultures, history and location (geography) of the English-speaking countries. The first-year course covers four 3-week units per semester, usually with short (c. 800 word) intensive readings (see Figure 1 for an example). The first lesson typically has an American focus. Examples from the spring semester are American Food, Baseball, American Music and a famous Hollywood Actor.

Reading 2: Winston Churchill

Winston Churchill, Prime Minister of the United Kingdom during the Second World War, and winner of the Nobel Prize for Literature, is a contradiction. On the one hand, he is seen by the British as a hero. He was voted the Greatest Briton of all time in a 2002 opinion poll. His speeches about defending freedom, and against the evils of Nazism in the Second World War, inspired the country to fight hard to win the war in Europe and around the world. Yet on the other hand, before the Second World War, in his various roles as journalist, soldier and politician, Churchill also represented the worst aspects of the British Empire, in its violence and racism.

Churchill the Inspiring Leader

Churchill became leader in 1940, after the first year of the war went badly for Britain, and the old prime minister resigned. Churchill was a great leader during the war because of his ability to inspire people, both the people around him and the country. Even while London was being bombed, he refused to leave the city. He walked the streets talking to Londoners, trying to keep their spirits up. You can see a picture of him walking through bombed London here.

His speeches are very famous. When he became leader in May 1940, he made a speech in parliament and said "I have nothing to offer but blood, toil, tears and sweat" ("toil" means "hard work"), and that "You ask, what our aim is? I can answer in one word: It is victory, victory at all costs, victory in spite of all terror, victory, however

Figure 1. Example of intensive content reading

The week 2 lesson typically has a British or Commonwealth focus. Examples covered are Sunday Roast, Cricket, The Beatles, and Bollywood. At least one of the lessons is taught in poster presentation style to prepare students for their own research and week 3 poster presentation on an example of their own choice. Researching and presenting on their own chosen topic not only allows students to organize their thoughts in the target language, but also exposes them and their audience to more historical, cultural and geographical facts about the English-speaking world.

Weekly activities in and outside class aim to "coatrack" English language elements, particularly vocabulary and extensive reading. Each unit starts with a bilingual list of vocabulary used in the readings and for presentations that students study and are tested on at the beginning of each Week 1 lesson (see Figure 2). Furthermore, twice per unit, students are given teacher-written extensive readings (typically, but not always, fiction) of around 2,000-2,500 words for homework (see Figure 3). These readings recycle some unit vocabulary, so that students are given a chance not only for direct vocabulary study, but also for repeated exposure. The aim is to make students able to handle English-only content instruction by the 3rd year of the course.

Vocabulary

accept	受け入れる、受け取る、応じる	nation	国家・国民
admit (to an organisation)	加入させる	Native American	アメリカ先住民
		official (adj.)	公式な
to agree	同意する、生産する	pioneer	先駆者、開拓者
bald	はげた	Portuguese	ポルトガルの；ポルトガル語
bald eagle	ハクトウワシ	to protest	抗議する
bankrupt	破産した	protestant	プロテスタント、新教徒
border	境界、国境	to purchase	購入、買収
both	両方；両方の	puritan	清教徒、禁欲的な人
British	イギリスの、イギリス風	railroad	鉄道
broadcaster	放送会社	referendum	住民投票
bulldog	ブルドッグ	religion	宗教
catholic	カトリックの	republic	共和国
Celtic	ケルトの	reservation	居留地 (アメリカ先住民)
century	100年間；世紀	rose	バラ
to consist of	成り立っている	to rule	支配する
to conquer	征服する	rush (n)	突進、ラッシュ
constitution	憲法	Russian	ロシアの；ロシア語；ロシア人
continent	大陸	Saint	聖人

Figure 2. A list for direct vocabulary study

The Bartender

Mark had worked at the High Moon Bar in New York for three years.

Had he always hated working there? No, not always. The pay was good, and he was a night person, so it suited him. His deep dislike for his job had started in just the last few months.

The problem was that he originally thought that this would be a temporary job, a job just to get some money while he decided which university course to take. Then he could start his 'real' career and his 'real' life.

Mark's plan had run into trouble because he had never made that decision. He had never found that perfect college course. So here he was, pretty much the longest serving staff member at the High Moon Bar, and he was MISERABLE.

Not only that, the customers (99% of whom were male business people) just loved to share their personal problems and complaints with Mark. So, even though he had a thousand problems of his own (a job he hated, no girlfriend for two years, no future) he had to listen to a million problems from the bar's customers.

And this made him *really* miserable.....

On top of that, this Wednesday was much busier than usual. He had just finished serving someone, when one of Mark's least favourite customers snapped[1] at him.....

"Bartender, give me a drink. What's taking so long?!"

"Excuse me, Mr. Jackson. Yes, what can I get you?" Mark replied, with his usual fake friendliness. He had memorised all the regulars' names and Mr. Jackson was someone you couldn't forget easily. To Mark, Mr Jackson seemed like the kind of person that if you asked him "Who do you most respect", he would say "myself". One of the other bartenders once whispered to Mark "Do you know how much money that guy makes?" Well, thought Mark, "maybe he has money, but he doesn't have manners".

"I'll have a whiskey sour," said Mr Jackson, looking all the time at his phone.

"No "please" as usual", thought Mark.

"Certainly sir, I'll get that straight away", Mark smiled

Mr. Jackson started straight in with his usual rant[2]. "What a day! My feet are aching! Where's an ashtray?!"

"Did you have a busy day, sir?" Mark asked with false interest.

[1] Snap:厳しい口調で言う
[2] Rant: わめき散らす

"Yes, I had to walk all over town for meetings. Then, in the middle of the afternoon, it starts to rain. That's when I realise I've got a hole in my shoe. A hole! I paid good money for these shoes. Too many people out there are trying to cheat you. I had to take taxis everywhere. Jeez, I'm exhausted."

"I'm sorry to hear that, sir. Here's your drink. That should help."

Mr. Jackson took a long sip, and then said "That's what I needed. Much better. Do you have any snacks? I'm hungry."

Mark again noted the lack of a "thank you" in the customer's reply.

"Certainly sir. Here are some peanuts and some savory crackers, and here's a napkin."

"You got a stir stick?" said Mr Jackson.

"Coming up... Here you are," said Mark.

Mr Jackson stirred his drink. Mark left him to take orders from another customer. However, after a few seconds, he put a peanut in his mouth. He frowned[3]. "Bartender, these snacks are awful."

Mark then did his best acting and faked concern: "I'm terribly sorry about that, sir. What seems to be the matter?"

"The peanuts are stale! I've had a hard day, I come here for a little rest and relaxation and I get stale peanuts!"

A heavy feeling moved through Mark's body.

"I apologize sir, I'll get you some fresh peanuts immediately. Can I get you another drink? This one's on the house."

"Another whiskey sour." And although Mr Jackson was still frowning, Mark could now see a little light in his eyes. Obviously, the idea of getting something for free from someone else helped improve Mr Jackson's mood.

"Right away, sir. Which whiskey would you prefer?"

"Jack Daniel's. Hey, where's my damned ashtray? I'd like to smoke…"

"I'm so sorry sir, here's your ashtray."

"About time!" growled[4] Mr Jackson.

Great, thought Mark. A job he hates, a busy night, and his most hated customer complaining as much as ever. He watched as Mr Jackson took out a packet of strong cigarettes, lit one and blew smoke right across the bar. The smell was terrible. A customer at the other end of the bar was shouting for service.

Figure 3. An example of extensive reading

Second- and third-year courses differ to first year only in that they cover three 4-week units per semester. In similar fashion to the first-year course, one week has an American focus

and the other a British or Commonwealth focus. Examples from the second-year spring semester are The Union Jack and Symbols of the United States (for the Flags and Symbols unit); Winston Churchill and John F. Kennedy (for the Leaders unit); and People in the US and People in the UK (for the Peoples unit). Week 3 is devoted to poster preparations with more focus on guided research. Week 4 is for poster presentations, where students present their own researched and designed A4 posters in small groups. (See figure 4)

(a) (b)

Figure 4. Student-designed posters on (a) “Peoples” and (b) “Leaders”.

1.3 Origins and Design: Philosophical approach

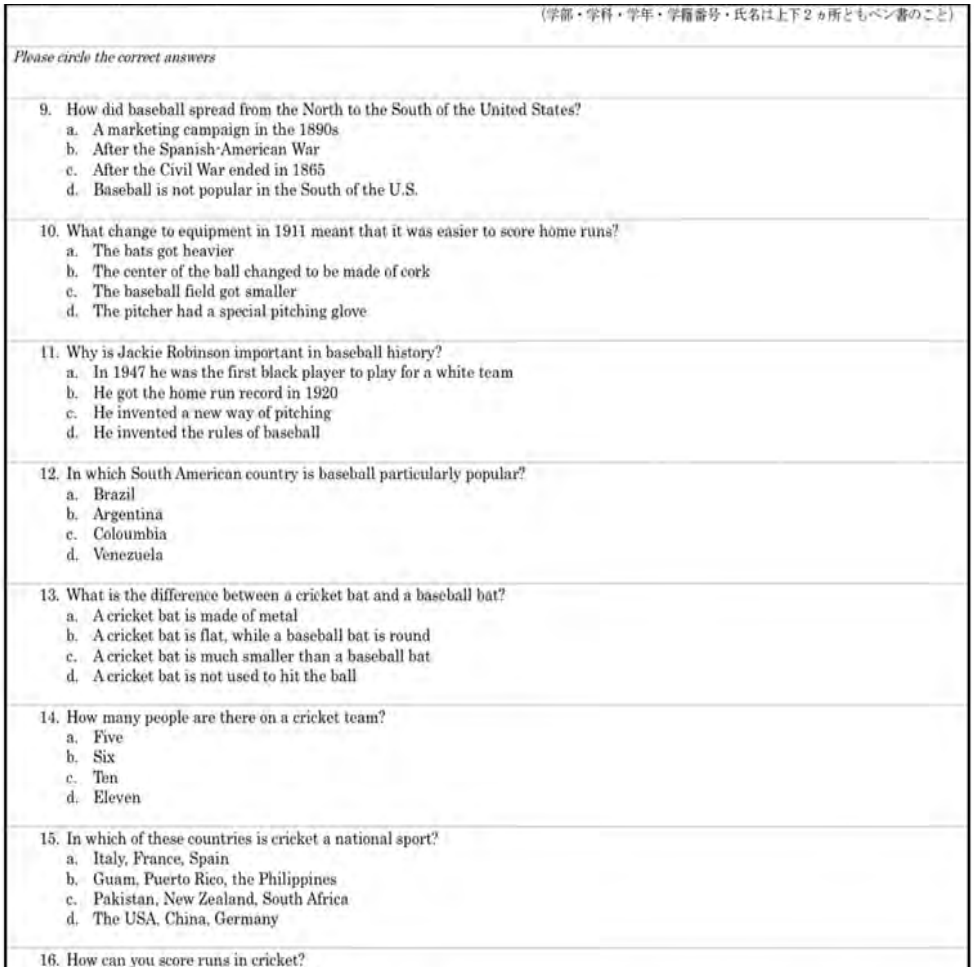
In implementing the course, we were faced with two challenges regarding students. Firstly, that first year students typically arrive with a striking lack of knowledge of English-speaking countries, including their geography and history. For example, they usually have very scant knowledge of even the geography of the US, and are unable to name more than a handful of US states or place cities on a map. It is not unusual for students to be unaware of why Australians speak English, or what the four nations of the United Kingdom are. Therefore, going into any more profound content, such as the history and influence of slavery, or the spread and location of the former British empire, or the whither and how of colonialism and independence needs considerable preparation. Secondly, students’ English ability level as indicated above is usually much below that needed for university level English-medium content instruction.

We chose an approach whereby students study ostensibly highly accessible topics with superficially easy to process information, but which allows students to delve into more fundamental content. The study of food in the US and the UK, for example, leads to an analysis of the more complex issues of immigration to the New World. A focus on American

music similarly covers black American history from slavery through the 1970s to the present day. The consideration of “baseball”, “Easter”, and “tea” provide opportunities for more academic material such as the rise of US power in the Pacific, Christian ethics, and the British Empire respectively.

Often, topic introductions include reflections on Japanese society, history and culture to activate schema and improve intercultural awareness. For example, in a lesson on the Tower of London and the significance of the Norman conquest that looks at the origins of English as a Germanic language with significant French-origin vocabulary, students are asked first to consider the history behind the foreign origins of various Japanese words.

Students are expected to remember content rather than simply understand and reflect on it as a language exercise. The content includes not only the textbook but also the content of their poster presentations. A final multiple choice exam at the end of each semester tests both their retention of the content learned as well as vocabulary. (see Figure 5) An end-of-semester speaking exam in which students are interviewed about the four or three posters challenges them to retain as much knowledge about their own chosen topics as possible.



（学部・学科・学年・学籍番号・氏名は上下２ヵ所ともペン書のこと）

Please circle the correct answers

9. How did baseball spread from the North to the South of the United States?
   a. A marketing campaign in the 1890s
   b. After the Spanish-American War
   c. After the Civil War ended in 1865
   d. Baseball is not popular in the South of the U.S.

10. What change to equipment in 1911 meant that it was easier to score home runs?
   a. The bats got heavier
   b. The center of the ball changed to be made of cork
   c. The baseball field got smaller
   d. The pitcher had a special pitching glove

11. Why is Jackie Robinson important in baseball history?
   a. In 1947 he was the first black player to play for a white team
   b. He got the home run record in 1920
   c. He invented a new way of pitching
   d. He invented the rules of baseball

12. In which South American country is baseball particularly popular?
   a. Brazil
   b. Argentina
   c. Coloumbia
   d. Venezuela

13. What is the difference between a cricket bat and a baseball bat?
   a. A cricket bat is made of metal
   b. A cricket bat is flat, while a baseball bat is round
   c. A cricket bat is much smaller than a baseball bat
   d. A cricket bat is not used to hit the ball

14. How many people are there on a cricket team?
   a. Five
   b. Six
   c. Ten
   d. Eleven

15. In which of these countries is cricket a national sport?
   a. Italy, France, Spain
   b. Guam, Puerto Rico, the Philippines
   c. Pakistan, New Zealand, South Africa
   d. The USA, China, Germany

16. How can you score runs in cricket?

Figure 5. End of semester content test

Four elements can thus be traced in language focus of the course: (1) Direct vocabulary study (2) Intensive reading with basic historical and cultural content (3) Extensive reading of teacher-written texts recycling vocabulary and related to topic (4) Research and presentation skills in English.

2. Responding to challenges in implementing CLIL

In this section, we will consider several challenges to the smooth implementation of our content/research CLIL course: initial student resistance to content learning in a language classroom, guiding student research and poster design, and the use of L1.

2.1 Student resistance to CLIL

Teachers generally reported that first year students, despite being informed at the beginning of the course, often expressed surprise when reminded (more than once) that they would be tested at the end of the semester on the content of the material they had studied and researched. Obviously, this incomprehension can be a problem if it interferes with the way students interact with the material both in final assessments and in synthesising material from different lessons, and with their attitude to preserving notes and their own researched materials (posters and scripts/notes).

We feel that the reason lies in understanding their experience of foreign language study up until university. The texts used in standard English study in schools for reading and listening are used primarily to practice comprehension and to supply material for discussion. They are, in a sense, disposable: once the lesson has passed, the content ceases to be relevant to study. Of course, teachers frequently endeavour to choose material with content that will pique students' interest, or which is worthy, so as to impact on the students' perception of the world. But this is not the same as providing content which the students are responsible for learning as a central course task. Students are not used to language classes where they study content *in* English rather than *for* English. It is perfectly reasonable for students to expect their seventh year of language study to be similar to their first six.

University teachers introducing students to CLIL therefore need to invest time in making sure that students are aware of the different nature of the course they are taking. As well as direct indication, revision of past content and connecting past and present lesson content can help them appreciate the primacy of content. It may also help to increase student motivation levels as the texts become meaningful to them as students. (See use of L1 below).

2.2 Guiding student research and poster design

For each unit, students are required to produce an A4 poster of at least six images to support a presentation of around three to five minutes on a topic of their choice that is connected to the unit theme. For example, where the unit on festivals and holidays teaches about

Christmas and Easter, students should choose another festival or holiday celebrated in an English-speaking country, such as Hallowe'en or Diwali.

The A4 poster format (rather than, say, PowerPoint) was chosen for practical reasons: it is simpler and quicker to manage, with fewer technical difficulties. It is also appropriate for time efficient small-group presentations, allowing quick repetition to improve fluency and providing a less anxiety-inducing task than all-class presentations (Prichard & Ferreira, 2014). However, we found three particular problems to which we needed to respond: choice of imagery, gaps in student research, and inappropriate topic choices.

Students sometimes struggled to understand the purpose of images in presentation, and chose repetitive or superfluous images as decoration rather than to support clearly the presentation narrative. For example, in the presentation on a sport and its history, instead of images indicating the inventor, famous historical players, geographical spread etc, a poster might consist largely of repeated images of essentially similar, albeit stylish, equipment (eg. three different pictures of tennis rackets); or on a poster where they had also included a map showing an actor or singer's birthplace in the US, they also superfluously include the US flag "because she is American".

Figure 6. Bad and good poster examples

Our initial response, as we developed these materials, was to provide students with good models of presentation posters in later units to help them understand the purpose of images. However, this had only marginal impact. What was ultimately much more effective was to also create a sample of a bad poster that blatantly committed the sins of repetition and superfluity (see Figure 6). These examples, by assisting metacognition regarding the task, were much more helpful in supporting teacher explanations of student errors in poster construction.

A second common issue was where students had failed to pick up on key points in a topic. For example, presenting the British Prime Minister Theresa May as an example of a leader without identifying the Brexit vote as the defining issue of her premiership, or a presentation on Pancake Day that failed to mention its origins in Christianity and the Easter story.

Your presentation must be about a man-made tourist site in an English-speaking country. Fill out the table below.

Site	Statue of Liberty	Tower of London	Your Choice:
What is the site? (details)	It's a statue made of copper. It stands in New York Harbour.	It's a white tower sitting on the banks of the River Thames in London.	
Who built it? Who designed it? When?	It was designed by Gustave Eiffel, and funded by the French population. It was shipped to the US in 1885 and opened in 1886.	It was built on the orders of William the Conqueror in 1887.	
Why was it built?	To celebrate the end of slavery in the US. People thought that with the end of slavery, all Americans had truly become free.	To demonstrate William's power as the new King of England. It was built on the Thames to control the shipping into London.	
How has it been used?	It has no practical uses: it is a famous tourist site.	As a residence, a prison, an execution place, a zoo, an army base, and it now houses the crowns and crown jewels of the British Kings and Queens.	
What famous events have happened at this site?	It welcomed the huge number of immigrants who came to the US from Europe.	Anne Boleyn. Henry VIII's second wife, was killed here. Richard III killed his nephews. The gangster Kray twins were imprisoned here.	
What does the site represent or symbolise?	It symbolises America's welcome to immigrants, and American freedom.	The power of the British Kings and Queens.	

Figure 7. Guided questions for student presentations

An effective response has been twofold: first, to provide the students with a generic series of questions for each topic presentation to guide their research. For example, with the unit on man-made tourist sites (such as the Statue of Liberty or the Taj Mahal), students are prompted to explain who commissioned and designed the building, the original purpose of the building, its use, its prominence in history and so on (see Figure 7). This has helped to provide students with support in developing higher-order thinking skills of analysing information for relevance, evaluating and creating (Krathwohl, 2002).

Secondly, teachers have encouraged students to draft their presentations early to allow intervention. This has also made it possible to intervene in a third problem. where students have misunderstood the topic, such as choosing a topic connected to a country outside the *eigoken*, or producing a generic country presentation without addressing the specific topic (such as colonialization and independence, immigration patterns, or national iconography).

With each of these three problems, the solution has been for teachers to be clearer about the genre rules and scope of the presentation topic to provide better support for student critical thinking. Because students freely choose the subject of their presentations, the complexity of the task may vary from student to student; support is necessary to equalise the burden of that task. The ultimate method of assessment – interviews with a different teacher (classes are rotated for the final week) – helps the teacher take on the role of preparing students for an independent test, allowing in-class assessment of presentations to become more formative than summative, and thus more motivating (Black & Wiliam, 2009).

2.3 Use of L1

The course was designed as a compulsory course for the whole year, with classes streamed according to ability (primarily TOEIC score). There was thus a range of class abilities, from around 470 average score for the top, to 300 for the bottom classes in their first year. Perhaps inevitably, there are differences in motivation levels between the higher and lower classes. We were therefore faced with a situation where the material was much more difficult for the lower classes, leading to much greater L1 use, including on the part of the teachers.

Initially, we considered the possibility of providing simpler or shortened materials for the lower levels. However, there were two obstacles to this solution. One was the burden of having to create different sets of materials for our teachers tailored to each level. A second was that students were able to move between levels between semesters and between years. As the course was designed to build upon what had been previously studied, all students had to study the same material. We therefore made the decision to provide students with the same material across all classes, instructing teachers to give support to students, using L1 if necessary, where they struggled with comprehension.

Fortuitously, this seems to have been a good decision pedagogically. As various authors have pointed out, a key reason why CLIL motivates students is that they are studying real-world content (e.g. Lasagabaster, 2011). As Lin (2016) argues, it is better to maintain content and compromise somewhat on language by using L1, and to supplement with multimodal materials. One of the part-time teachers set up a simple website with video materials to supplement the course, which teachers frequently use in class to reinforce and support learning. In short, it is important to remember the primacy of content in motivating students to study.

3. Success?

As a result of these strategies, teachers have seen a clear and marked improvement in the quality of student presentations. The numbers of images used has generally increased and image selection shows evidence of much improved analytical and creative thinking skills. This allows topic coverage to become more comprehensive. Teachers also report steadily improving motivation levels and test scores. Both the quality of presentations and the range of material has also impressed Japanese colleagues observing as part of faculty development, helping to validate the position of language instructors as contributors also to the content element of the departmental curriculum.

More broadly, we can refer to the four Cs framework to assess success in the course. Our initial focus had been on *content* in order to address what we saw as common deficits in basic historical and geographical knowledge, and *communication* in order to practice the topic-specific language acquired, in order to provide a foundation for students to move towards being capable of English instruction. As relatively experienced teachers, we also knew the value of activating schema by developing *interCultural awareness*. However, problems with student presentations revealed a relative initial neglect of the importance of *cognition*: we needed to adequately support the students in assembling, analysing, and evaluating information they researched in order to create a poster and tell the story of their subject. By moving to address this problem, we managed to significantly raise the quality of students' communication and presentation skills. This experience confirms the importance of appreciating that "Whilst the 4Cs can be outlined individually, they do not exist as separate elements. Connecting the 4Cs into an integrated whole is fundamental to planning." (Coyle et al 2010, p. 55).

4. Managing copyright and maintaining authenticity

This process of review and improvement has also allowed the full development of a textbook and teacher's manual for commercial sale. The investment in team coordination has paid off, with part-time teachers recommending the course to other institutions as well as producing their own materials to support the course. But commercialisation presents its own challenges. When materials were produced solely for in-house instruction, little consideration was given

to copyright issues: educational materials used without charging students came under "fair use". However, producing a for-sale CLIL textbook that relies heavily on imagery is a challenge in terms of copyright. Whereas straightforward language textbooks can use generic imagery from stock photo sources, CLIL textbooks need images directly of the real-world people and places that they discuss. An example of this problem was our lesson on the actress Jennifer Lawrence as part of the unit on movies. Precisely none of the pictures we used originally to illustrate her career were available for commercial use, and very few were replaceable. In this particular case, an entirely new lesson needed to be written on the career of an actor, and so the subject changed to Charlie Chaplin.

Thankfully, not all topics faced such difficulties. Several sources were particularly helpful in identifying useable imagery. The first is the use of the creative commons site (creativecommons.org). Creative commons is an NPO set up to provide a licensing system that allows the free use of images while maintaining the rights of the copyright owner. Under a typical creative commons license, an image may be used so long as the copyright holder is acknowledged. This source is particularly useful for generic images (such as "people playing cricket" or "nativity scene"). A second good source is Wikimedia, which supports the online encyclopedia Wikipedia. Most images uploaded to the site are done so under creative commons licensing. However, it is important to check each image is thus used; a few are used with special permission obtained by Wikimedia. A third source is to use the "usage rights" filter on Google image. However, this filter is not 100% accurate, and may return images that are actually not free use, or which have been mislabelled as free use by users of the sites that Google indexes. As a supplement to these sources, reverse image searches (such as tineye.com) can help to identify the origin of images, or to identify an authoritative source that states they are available for commercial use.

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The Teaching of Intercultural Communication with Academic Writing through a CLIL based approach - A Case study of a Tohoku University course

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Abstract
CLIL has been shown to develop students' intercultural communicative competence (ICC) and knowledge of other cultures. From the perspective of second language acquisition theory Cognitive Academic Language Proficiency (CALP) and CLIL share many commonalities as they both place an emphasis on improving cognitive and higher order thinking skills. The benefits of CLIL on the instruction of writing, however, especially writing at the discourse level, have yet to be determined within the research literature and results are not yet conclusive and definite. Through students' questionnaires this paper examined how CLIL methodology can be used to develop a students' proficiency in these 3 areas of ICC, academic writing and CALP within an intercultural communication with academic writing course at Tohoku University. Results indicated that the students felt they developed a better understanding of other cultures especially in relation to their own and although they were unfamiliar with the many of the conventions and rules of academic writing, the step-by-step progression of how to write academically, especially at the discourse level made the process accessible and enjoyable.

Keywords: CLIL, CALP, Academic writing, ICC, HOTS

1. Introduction

CLIL was established in 1994 in conjunction with the European Commission as a result of migrating populations across Europe. This created the need for a higher proficiency in designated European languages. CLIL was inspired by the Canadian bilingual immersion programmes of the 1960's. Marsh (2012) writes "the European launch of CLIL during 1994 was both political and educational. The political driver was based on a vision that mobility across the EU required higher levels of language competence in designated languages than was found to be the case at that time. The educational driver, influenced by other major bilingual initiatives such as in Canada, was to design and otherwise adapt existing language teaching approaches so as to provide a wide range of students with higher levels of competence" (p.1). Now most European countries have adopted CLIL into their mainstream curriculum. Ikeda (2013) writes, however, that if CLIL is a toddler in Europe than it is a mere baby in Japan and Ohmori (2014) further suggests that CLIL is still new to many

teachers in Japan. However, with the establishment of J-CLIL there now exists a group of scholars and educators within Japan who are promoting CLIL as a successful and necessary language teaching approach. For a fuller discussion on CLIL in Japan see Kavanagh (2018).

CLIL cannot be considered a new approach to language teaching as it borrows from sociocultural theory and has many things in common with bilingual education, English as a Medium of Instruction (EMI), Content Based Language Teaching (CBLT) and immersion programmes. "CLIL is a dual-focused educational approach in which an additional language is used for the learning and teaching of both content and language" (Coyle et al., 2010, p.1) and the integration of content and language with cognition and culture is at the core of CLIL pedagogy. This is reflected in the four C's of CLIL, namely, content, communication, cognition and culture. These four C's provide CLIL students with language and content related skills in addition to critical thinking, cultural awareness and intercultural communication skills.

Foreign language education can be considered to be the basis on which intercultural understanding and competence is built on and the dual focus of a typical CLIL class on both the content and language can provide the perfect environment for these objectives to be met. These goals are also reflected in the Japanese Education ministry's notion of shaping English language education to develop an understanding of both languages and cultures. One of the objectives of this paper is to discuss how these principles are incorporated into an intercultural communication and academic writing class conducted at Tohoku University that aims to provide students with 21st century competencies which will make them more competitive with their counterparts abroad in our now globalized society.

As the global use of English is expanding, high proficiency in academic English is a key factor to remain competitive in the global market. Therefore, the course at Tohoku University is also supplemented with academic writing instruction which aims to give the students basic academic writing skills, which include paragraph writing and quoting and referencing, in order for them to produce an end of semester paper based on an intercultural communication theme of their choice.

Most of the research on the benefits of CLIL, examine the methodology from a second language acquisition (SLA) perspective. One of these is Cummins (1984) SLA theory within bilingual education. At its premise it states that second language learners can learn Basic Interpersonal Communication skills (BICS) fairly quickly especially if they reside in the target language country. Cognitive Academic Language Proficiency (CALP) takes much longer to master and is learned within the school classroom. CALP and CLIL share many commonalities as they both place an emphasis on cognitive and higher order thinking skills. Other research within CLIL has shown that it allows students to develop their intercultural

awareness, competence and knowledge of other cultures (Dakowska, 2007) and has been shown to help learners be prepared for a successful career in a multilingual and multicultural Europe. Through CLIL classes students can learn about their own cultures and how they compare and contrast with others. A third area in CLIL research concerns writing, which at present, is a very underdeveloped research area. The benefits of CLIL on the instruction of writing, especially writing at the discourse level, have yet to be determined within the research literature and results are not conclusive and definite.

The focus of this paper will therefore evaluate how CLIL methodology can be used to develop a student's proficiency in the 3 areas of intercultural communicative competence, academic writing and CALP within an intercultural communication with academic writing course. The next three sections will now examine these 3 areas in more detail.

2. CLIL and intercultural communicative competence (ICC)

We are now living in an era of globalization and this has highlighted the need to integrate interculturality and intercultural communicative competence into the language curriculum. This has already been implemented in Europe as populations migrate within the continent. The Council of Europe's (2001) document details sections that stress the importance of promoting intercultural communication and the understanding of differing cultures. As we have seen, CLIL was also born out of similar considerations of population movement and the need to have higher levels of competency in stipulated languages across Europe.

Sudhoff (2010) writes that foreign language education can be used as a fundamental tool in establishing intercultural communicative competence (ICC). This refers to the ability to understand your own culture in relation to others and to implement this understanding when communicating with people from other cultures. Byram (1997) states that ICC is "the ability to interact with people from another country and culture in a foreign language" (P.71) and someone who has developed their ICC can construct relationships by employing the foreign language through effective communication with people of varying backgrounds.

With respect to ICC, one of the things we as teachers should consider is whether to let the students develop ICC independently by themselves by providing a general background of ideas or to take a more explicit approach and help students foster their development of ICC by challenging them in the hope that it will advance their critical communicative and intercultural awareness skills.

Gracia and Gomez Parra (2017) assert that CLIL supports the development of interculturalism based on its theoretical principles. Rozas (2009) maintains that culture within the CLIL framework is important because it consists of "building intercultural knowledge and understanding, developing intercultural communication skills, learning

about specific neighbouring countries/regions and/or minority groups, and introducing the wider cultural context" (p.31). Suhoff (2010) states that analysing, (re)constructing, comparing, contrasting and relativizing one's own cultural perspective and foreign cultural perspectives are essential elements in the development of intercultural competence and that CLIL classes can offer students a sense of 'interculturality' by providing a variety of viewpoints on particular intercultural issues. In addition, Campos (2009) states that CLIL methodology could outperform explicit cultural teaching in developing students' cultural understanding. However, research on ICC within CLIL is still under represented within the research literature (Mendez-Garcia, 2013).

3. CLIL and academic writing

In a review of the literature Dalton-Puffer (2011) concludes that studies that compared CLIL and EFL classes consistently revealed that CLIL students achieve better results than their EFL counterparts. The areas where CLIL students were more proficient included writing and speaking skills in the target language. In terms of writing, a number of studies exist that claim that CLIL classes prove to be more effective in improving students written composition in comparison to regular EFL classes (Gene et al., 2015, Hughes, 2013, Mungra, 2010). Whittaker et al. (2011) examined how English written composition developed in a History CLIL class at a Spanish secondary school with students aged 12-16. They collected samples of texts over four years from the same students and suggested that the learning of content in a CLIL class provides a good basis in which to produce written scaffolded discourse as they can draw from the content or subject that they are studying.

Despite such studies however, Whittaker et al. (2011) state that research on writing development within CLIL classes is still inconclusive. This is particularly apparent with the notion that CLIL has not been supported by sufficient empirical evidence to prove that it can help student writing proficiency beyond the sentence level (Dalton-Puffer, 2011). Sentence level knowledge can refer to an understanding of the rules of punctuation and subject-verb agreement, basically how to put together complete grammatical sentences. Beyond the sentence level includes the knowledge of transition expressions and paragraph organization and arrangement. This includes matters at the discourse level such as coherence and cohesion. Even though a student may demonstrate adequate skills at the sentence level their L2 compositions may include coherence issues that merit closer attention by the teacher. More research therefore needs to be done on whether a CLIL approach can help students at the discourse or macro level that goes beyond the basic sentence.

Jexenflicker and Dalton-Puffer (2010) found that CLIL students outperformed EFL students writing in respect to lexico-grammar, vocabulary and punctuation. However, within the level of discourse competence and textual organization differences between the two sets of students was difficult to measure with both groups needing more guidance in this area. Other

studies have been more positive, Ruiz De Zarobe (2010) found that CLIL students scored better than students on an English as a Foreign Language (EFL) programme in five categories of written discourse. These categories consisted of content, organization, vocabulary, language usage and mechanics. Organization was defined as the framing of ideas and the structure and cohesion of paragraphs and the clarity of exposition. Such skills are beyond the sentence level and can be seen as evidence that CLIL students benefit at the discourse level in their written compositions.

Perez and Ramiro (2015) found that Spanish university-engineering students who took a CLIL based English class outperformed EFL students at the discourse level within their written lab reports. In addition, Alrabah and Wu (2017) state that within their CLIL English course that 80% of students suggested that the CLIL course enhanced their writing competence in both the sentence and beyond sentence / discourse level. The former consisted of the rules of punctuation and the latter paragraph organization and transition words.

Based on this brief review, results on whether or not CLIL can be an effective methodology for written English remain unclear. Some studies have suggested that both non-CLIL and CLIL classrooms are deficient in some form in terms of writing production and outcomes (Llinares and Whitaker, 2006).

4. CLIL and CALP

Cummin's (1984, 1992) theory of bilingual education is based on his BICS and CALP distinction. BICS are social communication skills which are learned and built up within the home and in everyday communication encounters. CALP, on the other hand, consists of academic language skills, these are separate from the language used in generic everyday communication, and are mainly taught through schooling. CALP can take 5-7 years of L2 education to develop in comparison to BICS that can be mastered in 2 years (Cummins, 1992). CALP is considered to be compatible with CLIL as they both share the commonality of focusing on the growth and development of critical thinking skills and meaningful language use (Grabe and Stoller, 1997).

In order to learn a subject or themed content as in intercultural communication, students need BICS and CALP. Japanese 1st year students have developed BICS through the 6 years of English education they have received at Junior and High school level. CALP however is something they need to develop in their L2 as they go through their university career and this becomes even more important at postgraduate level where the expectancy to present and write in English is omnipresent. As teachers at university level we can expect our students to engage in the gradual process of increasing their CALP input and output.

In addition to acquiring the target language, learners should develop skills such as comparing,

classifying, synthesizing, evaluating, and inferring when developing academic competence. This relates to Bloom's (1955) Taxonomy as low order thinking skills (LOTS). According to the theory students studying LOTS learn to remember, understand and apply the new knowledge they have acquired by explaining it. Students are also encouraged to acquire what Bloom (1955) calls Higher Order Thinking Skills (HOTS) that consist of analysing, evaluating and creating. Coyle et al. (2010) suggest that an effective CLIL course challenges learners to think independently by themselves and to participate in these higher order-thinking skills.

The aim of this small study was to see how a CLIL themed intercultural communication class helped in providing students with ICC, academic writing and CALP skills based on their perception before and after taking the course. The 3 questions this paper aims to address are the following:

1. Did students develop their cultural knowledge, intercultural communicative competence and critical cultural awareness through a CLIL intercultural communication course?
2. Did students believe that their academic writing skills improved at both at the sentence and beyond sentence level after taking this course?
3. Did the students feel they improved their CALP skills by the end of the course? This is defined as the development of higher order thinking skills.

5. Course description

This course was created to both fill a void and the need for students to learn and engage in academic writing that would benefit them in their future studies at the university and also onto postgraduate level. The students at Tohoku University whom we teach are predominately engineering and science students, many of whom go on to postgraduate school where proficiency in academic English is very important. Academic English proficiency and the need to have skills in ICC are now a prerequisite to be competitive in a global market. Therefore, combining these two areas to teach a course on intercultural communication that emphasizes CALP and academic writing skills was the objective of this course.

The knowledge Japanese university 1st year students have of academic writing is limited. Mulvey (2016) found that over half of his sample of 1st year students had no experience with how to quote or write references in Japanese or English. Hirose (2003) suggests that the main form of writing that students do at high school is diary writing or *kannsou bun* that is a description of one's own impressions about a given topic. Kavanagh (2017) found that 1st year Tohoku University students were also unaware of the conventions and rules of academic writing.

The class is based on intercultural communication themed units that are based on group work,

collaboration, debate, discussion and problem solving. The units are based on themes that encourage discussion on cultural similarities and differences across a wide range of topics and countries. Authentic materials are used which include vocabulary glossaries and listening and writing tasks that provide the necessary grammar skills that lead up to a discussion or problem-solving task based on the themed unit.

The themed units included an introduction to intercultural communication theory, Eastern and Western communication styles, stereotypes, globalization, and politeness theory.

The classes within this course were based on a flipped learning pedagogical approach. This meant that students were introduced to the theme of the next lesson as a homework assignment, which they completed and used in class, and subsequent classroom activities, built on this through discussions, debates, and problem solving. The students were provided with the language they need prior to class and all handouts included bilingual glossaries of difficult vocabulary and expressions that the students require ~~needed~~ in order to carry out classroom activities.

Below is an example of back-to-back lesson that examined Japan's homogenous society and how it is changing in a more globalized world.

Homework assignment

1. For homework assignment students watched a video on the so-called *haafus* (mixed race individuals born in Japan) and completed a worksheet based on their opinions of the source material and its content. The aim of the video was to introduce students to concepts and ideas that would be discussed in the following class.

Lesson 1

2. In the next class students were placed in small groups carried out discussions based on their homework above.
3. After the discussion feedback was given from the teacher in the form of suggestions and corrections. The leader from each group was then asked to give a summary of the discussion the group had.
4. The topic of diversity in Japan was introduced further by introducing the topic of *haafu* identity and what it means to be Japanese. Tasks given were related to this topic and range from negotiating dilemmas, hypothetical situations and problem-solving tasks.
5. In line with current events of the time (Prime minister Abe's call for a revision to Japan's immigration control law which would allow an influx of approximately half a million blue-collar foreign workers to come to Japan to work in such industries such as construction and agriculture), students were introduced to the idea of an increasingly diverse Japan in the future as more foreign workers enter Japan to help its labor shortage

and aging society. Looking at a set of pictures and newspaper headlines students are asked to brainstorm ideas on the pros and cons of immigration and globalization.

6. In the last segment of the class, as there were 32 students, they were split into four groups of eight. The 8 members of each group were then given the following statement "The population in Japan is decreasing due to a declining birth rate. Therefore, in the future, Japan may need more workers from overseas to enter Japan to make up for a labor shortage." Students were then asked to decide which 4 students wanted to argue for the motion to allow more foreigners to live and work in Japan and which 4 would like to disagree and debate against the motion. Students were told that they do not necessarily have to agree with what they are arguing for or against and the concept of playing devil's advocate was introduced to them.

Homework assignment

7. Once groups were decided, the homework assignment was given. Each student had to do research on the topic and make notes to build an argument for the motion they have been assigned to. That is, an argument for or against immigration into Japan. The groups would then reunite the next lesson in a 4 verses 4 group formation.

Lesson 2

8. Students sat in the same groups as the previous lesson and each group of 4 students were given time to exchange their notes and formulate their ideas on how they would open their debate by clearly stating their opinions to the opposing group of 4 who would argue against them.
9. Once preparation had finished, each group member gave their opening arguments uninterrupted while the opposing group took notes on what they said. After both groups of students gave their opening arguments students were allowed to reconvene and whilst looking at the notes they had prepared began to create counter arguments toward the opposing group.
10. The next part of the debate was free flowing in respect to the way each group member was allowed to address the other group member's points and offer an alternative viewpoint. Each part of the debate was timed and at the end of the debate students were asked if they felt they had won a consensus of if their opinions had changed during the course of the interaction. Feedback was presented on student performance and corrections given when appropriate.
11. The class finished with listening and vocabulary quizzes that were based on the theme of the previous class.

6. Course structure

The initial classes of the course were similar to the pattern above and starting with intercultural communication and politeness theory the aim of these themed classes was to

give students a background on cultural differences and communication styles. At the start of the course students were told that they had to submit three titles based on an intercultural communication theme, for their academic paper, which was due in week 6 of the 15-week course. After discussion with the teacher on which title the student would like to write on and how they would approach the topic, with a clear aim and focus, the teacher then gave the student a 'green light' to go ahead and start writing. This process was important, as some students tend to have large ideas or topics with no clear focus or aims on what they want to write. In this lesson the students are taught about how to structure their opening paragraph in a hook (to capture the reader's attention) background and thesis statement (an outline of the aims and focus of the paper) structure. (See appendix A for an example of a student's introductory paragraph based on these concepts). This then leads to instruction on how to write coherent paragraphs (rules of topic sentence, supporting sentence and concluding sentences) and the final concluding paragraph.

The second half of the course aimed to combine intercultural communication themed classes that are supplemented with exercises that allow students to master the skills they need to write a good academic paper such as summarizing discussions using direct and indirect quotes, and quizzes on writing references for academic papers. While sentence level skills are taught (written verses spoken language, academic writing style, punctuation) there was also a large emphasis on the discourse or beyond the sentence level skills which helped students with the flow of their paper and the cohesion of ideas. Students have to submit their typed academic paper (at or around 3-4 pages in length) in the last lesson of the course.

An Introduction to Academic Writing (ITAW) booklet that was created by the teacher, was given to all students. The booklet outlines the rules and conventions of academic writing along with model papers for the students to base their own papers on. From lesson 6 various aspects of the academic writing process are taught and this handbook is used as a reference guide for the students. As students are told to start writing from lesson 6, they have the next 9 classes to complete their paper. Students are encouraged to submit weekly paragraphs or sections that the teacher corrects and gives feedback on. This is all done through e-mail and the majority of students take advantage of this as they can work on the weaknesses and areas they need to improve on as they write their paper. This process results in a set of good academic quality papers.

7. Assessment

Speaking and writing evaluation of the students was based on pre-determined rubrics. The speaking rubric was based on discussion and debating skills and each student was given a score based on their in-class performance and demonstration of higher order thinking skills, and not just solely on conventional grammar and fluency criteria.

Writing and academic writing skills were also evaluated on a similar rubric. One rubric was created for general writing composition (a sentence level rubric, rules of punctuation, grammar, sentence structure, etc.) such as answering questions or tasks within class or assigned as homework. The second rubric was used to evaluate essays or continuous writing of 5-6 paragraphs which included the academic paper that was submitted at the end of the course. The rubric was used to evaluate the structure of paragraphs, adherence to academic conventions including quoting, correct referencing, the use of appropriate academic language and the flow and coherence of ideas throughout the paper. This rubric can be found in appendix B.

Listening and reading (vocabulary) was evaluated through a series of quizzes throughout the course and these quizzes were based on themes, topics and vocabulary learned in previous lessons.

7. The data

The English courses at Tohoku University are simply broken down into A, B and C. The A and B classes are taken by 1st year students and focus on reading and communication respectively. In the second year, students take C classes that build on what has been learned in the 1st year in the A and B courses. The students' English classes are separated into departments and in any one semester a teacher could have a verity of students from medical, engineering and economics.

The data from this study came from students from a B class that is taught in the first year. B1 is taught in the first semester and B2 in the second. The data comes from a B1 class and the students in this class were from the faculty of Arts and Letters ~~department~~. Students within this faculty can study humanities ranging from majors in literature, linguistics, history, sociology and psychology. In total there were 32 students in the class. As this was a humanities group, there was an equal share of males and females in the class. This is in contrast to engineering and science classes that tend to be dominated by males. Students take a TOEFL IBT test at Tohoku University prior to starting the first term and the average score of this class is a converted score of 21 out of 30.

8. Methods

Simple questionnaires were given to the students in the first lesson of the 15-week long course. These questions were designed to find out what the students already knew in terms of classroom content and English language skills. The questionnaire answers from students are outlined in the results section. An additional questionnaire was also administered in the last class of the course, in week 15. The aim of this questionnaire was to evaluate how much students thought they learned with regards to ICC, academic writing and CALP.

9. Questionnaire results

Table 1 illustrates the questionnaire that was given to students in the first class and the results are discussed below.

Table 1. Questionnaire given in the first class (Week 1)

Q1	Have you studied any form of academic writing in Japanese or English prior to this class?
Q2	Have you ever taken a class solely on intercultural communication before?
Q3	Are you aware of CLIL methodology?
Q4	Would you rate your writing skills as being better than your speaking skills?
Q5	Please rank the following from 1 to 7 in terms of difficulty. 1 being the easiest. 1. Learning vocabulary 2. Pronunciation 3. Grammar 4. Listening 5. Reading 6. Speaking (discussion, debate, holding a conversation, giving a presentation) 7. Writing

For Q1 all students responded no and that they had not experienced or learned about academic writing either in their mother tongue or in English at high school. This was actually no surprise as it reflects the current research data (Kavanagh, 2017, Mulvey, 2016, Hirose, 2003, Tashima, 2015). For Q2, some students suggested that they had taken lessons on intercultural communication that mainly consisted of cultural differences but not an entire course on the subject. With Q3, some of the students who will major in applied linguistics mentioned that they knew of CLIL, others mentioned the ECC? Junior TV commercial that advertises CLIL usage in their schools. (EC Junior is a private English language school and through their recent commercials and literature they often cite CLIL as an exciting and useful teaching framework that they have adopted themselves). Q4 asked the students to compare their writing and speaking skills in English and the majority, 89%, suggested that writing was easier to learn than speaking.

The final question asked them to rank what they find most difficult when learning English and the overall majority suggested that speaking, specifically the ability to have a discussion, debate and hold a conversation was very challenging and the hardest in terms of difficulty. Vocabulary and reading were not ranked by any student as being the most difficult.

Table 2. Q5 Skills that students find most difficult to acquire when learning English.

1	Speaking (discussion, debate, holding a conversation etc.)	78%
2	Pronunciation	10%
3	Writing	4%
4	Listening	4%
5	Grammar	4%
6	Reading	0%
7	Learning vocabulary	0%

In order to understand how the course helped improve particular language skills of the students a second questionnaire was administered in week 15, the final week of the course. The list of questions is shown in table 3.

Table 3. Questionnaire given in the last class (Week 15)

Q1	Did you think your academic writing skills improved? What was most improved and what did you learn that was new?
Q2	Did this class help you to have a better understanding of other cultures?
Q3	Did you find that this course's CLIL methodology was useful for you?
Q4	Would you rate your writing skills as being better than your speaking skills after taking this the course?
Q5	Please rank the following from 1 to 7 in terms of the most difficult part of the course. 1 being the easiest. 1. Learning vocabulary 2. Pronunciation 3. Grammar 4. Listening 5. Reading 6. Speaking (discussion, debate, holding a conversation, giving a presentation) 7. Writing
Q6	Do you think you improved your critical thinking, debate and discussion skills as a result of this course?

In answer to Q1 the majority of students (90%) suggested that their academic writing knowledge (specifically academic rules and conventions and discourse level considerations) increased dramatically, predominately because it was the first time they had studied the formalities and rules of academic composition. Some students mentioned that it was a difficult but rewarding experience due to the fact that the teacher gave weekly feedback and advice as they wrote their paper.

For Q2, students replied that the themed units gave them a better understanding of other cultures such as how other cultures think as reflected in their customs, communication styles and behavior. Many students have ambitions to go abroad on both short and long term study abroad programmes and suggested that this course gave them additional insights and knowledge on the countries they want to visit and installed in them a sense of confidence in any potential future encounters where English is used as a communication tool.

Q3 was a little difficult to evaluate as students were not familiar with CLIL but suggested that teaching content, such as this intercultural communication class, was fresh, original and practical as it gave them some useful knowledge for when they go abroad and interact with students on campus. One student comment that "We can notice the charm of English through this course" which was a pleasant piece of feedback. With Q4 the majority of students (94%) stated that their speaking skills had improved more than their writing skills. This was probably due to the fact that speaking formed the vast majority of tasks and activities within the class with writing mainly used for homework, both for assignments and the academic paper itself. In addition, many students commented that this class varied tremendously from their high school English classes as the focus within this class was on speaking, debating and the emphasis on critical thinking on a variety of ideas. This, therefore, was perhaps dominant in their minds when replying to this question. However, although many thought their speaking improved more than their writing skills, students commented that the knowledge they acquired on how to put together a 6-paragraph essay and the rules of cohesion and coherence that this entails was very challenging but a rewarding experience. As a result of the previous comments it was perhaps not a surprise to see that writing was considered to be one of the most difficult aspects of the course which was followed by speaking and then listening, grammar and learning vocabulary as shown in table 4.

Table 4. What was the most difficult skill to learn within the course?

1	Writing	40%
2	Speaking (discussion, debate, holding a conversation, etc.)	30%
3	Listening	10%
4	Grammar	10%
5	Learning vocabulary	10%
6	Pronunciation	0%
7	Reading	0%

The end of course semester questionnaires indicated that the students felt they developed a better understanding of other cultures especially in relation to their own. This would seem to address the question of whether or not they developed their cultural knowledge,

intercultural communicative competence and critical cultural awareness through the course. Students suggested that by understanding their own culture better and realizing how westerners perceive Japanese culture, as reflected in authentic materials such as videos, online articles and film, they could appreciate the differences in cultures especially in terms of communication styles and attitudes.

Students also commented that although they were unfamiliar with the many conventions of academic writing, the step-by-step progression of how to write academically in coherent paragraphs, including their own sense of academic vocabulary growth, made the process accessible and enjoyable. This can perhaps go a long way to answer the second question of whether or not students believed that their academic writing skills improved at both at the sentence and beyond sentence level after taking this course. Students commented that the most enjoyable part of the course was engaging in debate and stated that they learned how to formulate their ideas better through the time they were given to analyze, evaluate and state their opinions and ideas through their homework assignments or in class tasks. This may therefore suggest that the students improved their CALP skills by the end of the course based on their perceived improvement of their higher order thinking skills.

10. Conclusion

This small scale study is based on one class with a small data sample and does not examine or test student performance in relation to more traditional type ESL classes to compare which methodology best improves student proficiency in intercultural communicative competence (ICC), academic writing and CALP. However, this paper was intended to be an initial insight into how a CLIL intercultural communication themed course with academic writing can benefit students ICC, their basic academic writing skills and CALP and this was reflected in student feedback of the course. At university level, and if we are to make our students more globally aware and interculturally more competent, language teachers can adopt a CLIL approach to prepare students for their future careers both as academics at post graduate level and future professionals. Such courses can incorporate the skills and strategies for developing cultural awareness leading to ICC for global citizenship.

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Appendix A. Sample of student academic paper introduction writing.

In the course students are taught that a good introduction should be broken down into a 3-part structure. (A hook, background and thesis statement).

The following introduction is from a paper that compared the cherry blossoms of Japan and roses in the west in a cross-cultural comparison of aesthetics and sense of beauty.

Hook

> Tourists from Asia and other parts of the world come in record numbers to experience the most iconic Japanese event, the cherry blossom season.

Here the student uses an interesting statistic to grab the reader's attention.

Background

> Cherry blossoms are symbols of Japan, and Japanese people love them dearly. It is no exaggeration to say that cherry blossoms are the national flowers of Japan. On the other hand, generally speaking, Westerners love roses. The appearance and smell of them have been popular from ancient times, especially in the West. Why do Japanese people love cherry blossoms? and Why do Westerners love roses? These differences in taste between Japan and the West perhaps reflects their definition and sense of beauty.

Here the student gives a background to the topic that will form the topic of the paper.

Thesis statement

> This essay will analyze how cherry blossoms in Japan and roses in the West are depicted. Through this analysis, the difference in taste and aesthetic between Japan and the West will be examined. Finally, I will identify their sense and definition of beauty.

Here the student provides the reader with a thesis statement and what the paper will attempt to answer / examine.

Appendix B. Academic paper grading rubric (Evaluation criteria)

Evaluated items	**A (Excellent)**	**B (Very good, above average)**	**C (Adequate, meets standard)**	**D (Inadequate)**
Organization (Beyond the sentence level knowledge that includes paragraphing organization and arrangement, coherence and cohesion issues)	Very clear and well-organized paragraphs from the introduction, the main body and conclusion. Demonstrates an excellent understand of good academic writing procedure.	Generally, very clear and organized paragraphs with only minor errors present in terms of cohesion and coherence.	Some evidence of clear and coherent paragraphing but needs improvement in terms of organizational and arrangement.	A very poorly put together paper. Either no paragraphing or they are overtly long with no structure and focus.
Grammar, punctuation and spelling. (Sentence level knowledge)	The paper is free of spelling, punctuation and grammatical errors. Just about perfect.	Minor problems such as spelling, punctuation, and grammatical errors.	Errors are present but they do not affect an understanding of the paper.	Many errors which create distraction and make the paper difficult to read.
Paper content	An easy to follow paper with an excellent synthesis of ideas, analysis and critical thinking on the topic.	The paper shows good critical thinking and original ideas along with a good examination of the topic.	The paper generally shows a good aptitude for some original thinking on the topic but some ideas may need to be developed more.	The paper does not demonstrate cohesion of ideas and alternates from topic to topic with no sense of direction or purpose.

Paper format / follows paper guidelines	Adheres to the given paper format guidelines.	Generally, adheres to paper format guidelines but some minor errors remain such as numbering and spacing.	Not all paper guidelines have been adhered to. Problems with layout, margins, font and spacing.	No evidence of adherence to paper guidelines. Poorly presented.
Usage of direct and indirect quotations / no plagiarism issues.	Written correctly and appropriately according to APA guidelines.	In general, written and used correctly according to APA guidelines.	Quotations are present but not written correctly.	Quotations not present at all. Ideas in paper not credited to anyone.
References	Just about perfect reflecting the guidelines given.	Minor errors present.	References are present but not written correctly. Missing information. No publication years or URL's in case of Internet sources.	No references at all.
Overall evaluation	An excellent paper both at sentence and beyond sentence level. High degree of attention to logical ideas that are expressed clearly. Evidence of research on the topic and the paper adheres to academic conventions.	The paper structure and flow is good overall with only minor errors at the sentence and beyond sentence level. The paper mostly adheres to academic conventions with only minor errors in terms of format.	The paper structure and flow is adequate but needs improvement. Many errors in terms of organization and sentence level knowledge.	Below expected standards. Need to work on how to structure and write an academic paper.

Exploring Cognition in CLIL: Creativity, Metaphors and Economics

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Abstract
A CLIL approach views learning as a constructive process that seeks to engage learners with content while actively developing their communication skills in the target language. One goal of this approach is to cognitively challenge learners and develop their creative potential. Creativity is an essential part in foreign language learning since natural language is highly creative (Carter, 2004) and this skill commonly takes advantage of one's relational and metaphorical reasoning. In this paper, I analyze creativity within a CLIL framework by using Conceptual Integration Theory (Fauconnier & Turner, 2002) as a model. In this theory, creativity proceeds from combining two concepts together, resulting in emergent structure, as unexpected similarities between them are discovered. For analysis, I use pictorial and multimodal metaphors found in the cover art from *The Economist*. In short, it is argued in this paper that using such "authentic" material can help develop learners' creative cognition within a CLIL approach to teaching economic content. This is especially relevant for L2 learners since the language of economics tends to be highly metaphorical (Charteris-Black, 2000). Moreover using multimodal metaphors provides scaffolding for learners to raise their awareness of the conceptual structure motivating many metaphors within the field of economics (Boers, 2000) and these types of images can also be used for the explicit focus of meaningful learning opportunities (Weninger & Kiss, 2013). Finally possible ways and potential difficulties to implementing this into the classroom are discussed.

Keywords: CLIL, cognition, creativity, conceptual blending, economics

1. Cognition in CLIL: The Role of Creativity

One of the defining characteristics of Content and Language Integrated Learning (CLIL) is its emphasis on integrating academic content with language while developing learners' intercultural competencies. Alongside these pivotal three C's (content, communication and culture), a CLIL approach also aims to effectively teach content that cognitively challenges the learners to think in creative ways (Coyle, Hood & Marsh, 2010). Moreover in a summary of cognition in CLIL, Coyle and colleagues (2010) describe it as "engagement in higher-order thinking" (54). Using Krathwohl's (2002) revision of Bloom's Taxonomy for a description of these higher-order thinking skills, to "create" is on the top of this list, which is described as "putting elements together to form a novel, coherent whole or make an

original product" (Krathwohl, 2002: 215). In short, cognition in the CLIL framework emphasizes creativity as a central part of cognition and therefore needs to be analyzed in greater depth.

The aim of this paper is to explore creative aspects of meaning construction and the centrality of metaphor to human thought and imagination and then look at ways to integrate creative metaphors to the content area of economics. In this paper, I first discuss metaphor, as a key cognitive tool for creativity. Then I show how prevalent metaphors are in language by using corpus examples from the field of economics while also illustrating how similarly structured metaphors appear in other communicative modes like pictures. Using Conceptual Integration Theory (Fauconnier & Turner, 2002), as a model, I look at the cognitive processes of comprehending metaphors by analyzing multimodal examples. Finally I suggest the importance of raising learners' awareness of them, as a cognitively challenging task that also builds their knowledge of the content and language.

2. Metaphors

Conventional metaphors are widespread in language and are processed like any other salient, familiar language through a process of sense retrieval (e.g., Blank, 1988; Giora, 2003). That is to say, they have been lexicalized. For instance, consider the following conventional metaphor:

(1) The 2016 presidential election season is a **goldmine** for The Nightly Show with Larry Wilmore. [CBS this Morning, April 25, 2016][1]

If one looks up the word "goldmine" in the dictionary, one will find the first sense to be the literal meaning, as in "a place where gold is mined", but also the second sense, as in the metaphorical meaning, "a source of wealth, valuable information, or resources". This is obviously not creative nor is it cognitively challenging and metaphors like these are commonplace in language and may be regarded as polysemous words. This conventionalization process, which results in the metaphorical extension establishing a dictionary entry, is primarily the interest of etymologist and to a lesser extent to those interested in creativity (see Holyoak & Stamenković, 2018). That said, metaphor is far from a unitary construct, but rather should be viewed as lying along a dynamic continuum between the conventional and the novel or creative. In other words, creative metaphors through use and habituation move along this cline towards conventionality. Creative metaphors deviate from the familiar, often for some rhetorical purpose such as establishing a relationship,

[1] The following linguistic corpus examples in this paper come from the Corpus of Contemporary American English (COCA), an online corpus of English containing over 560 million words (for more information see https://corpus.byu.edu/coca/).

persuading, evaluating, providing insight, or having emotive effects. One common way to produce a creative metaphor is to extend the boundaries of a conventional metaphor, imaginatively use unused parts of a metaphor, or combine metaphors in new and unexpected ways (Lakoff & Turner, 1989). For instance, in economics, money is often metaphorically viewed as a liquid. This then motivates a number of conventional metaphors like "to freeze someone's account" (if money is frozen it doesn't move and therefore one cannot access it); "cash flow" (the movement of money around the economy); and "flush money down the drain" (carelessly waste money). Consider the following headline.

(2) Cash Flows: Beijing **Opens the Taps** With Rail Projects and More Lending. [The Wall Street Journal, July 13, 2018]

The first part of this headline, "Cash Flows", establishes this metaphorical frame of money as a liquid and then uses the expression "Opens the Taps" as a creative extension. In other words, "tap" in the conventional metaphorical sense, often refers to "to tap into" a new market, insinuating to exploit or use a resource there. Here tap is a noun, which refers to the pipeline where water flows. The government of China is metonymically referred to as the city where the government resides (much like Washington D.C.) and then this government (i.e., Beijing) is personified as an individual that can open and close the taps or the flow of water, which we interpret from the context as money for rail projects. So in this simple headline, both conventional and creative metaphors are interacting to convey a lot of information in a very compact sentence that is both vivid and imaginative.

The point here is to show the importance of metaphor in language, but also the interaction between conventional and creative language. In other words, to creatively challenge learners, as previously indicated to be one of the aims of the CLIL approach, it is important to expose the learners to the underlying conceptual structures (i.e., money is a liquid) that motivate many conventional metaphors and then how individual users of the language expand, elaborate on, and creatively play with these knowledge structures. In essence, metaphor shows on a small scale the creative process (Finke, Ward, & Smith, 1992; Miall, 1987) and therefore is a good resource for language learners to engage in higher order thinking and cognitively challenge them.

2.1 Metaphor in Pictures

Conceptual Metaphor Theory has been one of the more influential and controversial theories of metaphor over the past few decades (see Gibbs, 2011; Kövecses, 2008; Lakoff & Johnson, 1980). According to this theory, metaphor is not merely a linguistic device, but something conceptual in nature, as in, we think in metaphor, and therefore is pervasive in everyday life and can be found in other modes of communication. For instance, recently researchers have begun to explore metaphors through analyzing them in gestures (Cienki & Müller, 2008)

and images (Forceville, 1996; Forceville & Urios-Aparisi, 2009). Pictorial metaphors like linguistic metaphors involve the mapping of features between two distantly related concepts. More specifically, there is a topic and a source (or vehicle). The topic refers to what one is trying to talk about and the source provides certain structure in order to talk about it. In contrast to language, pictures have different affordances and allow for different interactions between these two concepts. Forceville (1996) identified a number of ways that metaphor may appear within the pictorial mode. It is beyond the scope of this paper to discuss this in great detail, but I will provide a few examples from car tire adverts.

1) *Hybrid model* – when the two concepts are blended together within the image. In one advert by Toyo Tires, the car tires are blended together with octopus legs and consequently, the metaphor is *"car tires are octopus legs"*[2]. In this metaphor the feature of the gripping force of octopus legs gets mapped onto the car tires, providing the tires a favorable image.
2) *Context model* – when only one concept (the topic) appears in the image where the other concept (the source) typically appears. In one advert by Michelin Tires, a car tire (topic) replaces a button (source) on a yellow raincoat. In this type of pictorial metaphor, the topic is visible, but the source is understood through the context of the image and one likely interprets the metaphor as *"car tires are raincoat buttons"*[3] and the feature of protection against stormy conditions gets mapped onto the car tires. The reverse is also possible where the source concept appears in the image where the target concept should be. In the example in Forceville (1996), a life buoy appears where the car tires should be and again this could be interpreted as these car tires provide safety in adverse weather conditions.

Pictorial metaphors in advertising are widespread (Kaplan, 2005; Leiss, Kline, Jhally, Botterill & Asquith, 1990) and again they are often creatively designed for rhetorical force, most often for the purpose of persuading the viewer to perceive the product in a favorable manner.

2.2 Metaphor in Economics

The world of economics is typically understood and explained in metaphoric terms (Mason, 1990; McCloskey, 1983; White, 2003) and thus teaching metaphors is important in economics vocabulary teaching (Charteris-Black, 2000). Moreover, opportunities to raise learners' awareness of the conceptual structure motivating many metaphors commonly found within the field of economics has been shown to have a positive effect on the learners acquisition of the language (Boers, 2000). Few have considered the use of pictorial

[2] see for the print ad: https://www.adsoftheworld.com/media/print/toyo_octopus
[3] see for the print ad: https://www.appliedartsmag.com/winners_2006/H-085.jpg

metaphors as a way to scaffold the language and provide an additional mode for comprehending the metaphor and to provide a visual image to conceptually anchor the metaphorical structure (for an exception see Birdsell, 2017). *The Economist* is a popular journal and the cover art provides abundant authentic material of pictorial metaphors that could be used for teaching purposes. For example, economics is often understood through two basic metaphorical traditions, the mechanistic (machine) and the organic (living thing) tradition (White, 2003).

In order to look more specifically at how meaning emerges from the interaction between the two domains (e.g., economics and a machine), I use Conceptual Integration Theory, as a model to understand the cognitive processes of comprehending creative metaphors found in the field of economics.

2.3 Conceptual Integration Theory: Insight into Cognition

Fauconnier and Turner (2002) developed a theory commonly referred to as Conceptual Integration Theory (CIT), which is a basic, higher-order cognitive operation for integrating or blending information such as metaphor and analogy (see Birdsell, 2014 for a summary). CIT evolved from earlier research on mental space theory (Fauconnier, 1994, 1997). According to this theory, mental spaces are "small conceptual packets constructed as we think and talk, for purposes of local understanding or action" (Fauconnier & Turner, 2002; 40). In other words, mental spaces are real-time partial representational structures within a discourse scenario. The important aspect of this theory is that cognition involves these mental spaces and mappings between them within a larger network. Moreover selective elements from these mental spaces are projected into a hybrid or blended space where new meaning emerges. This model is especially useful to explain how metaphor works at a conceptual level and how emergent structure or new meaning arises in this blend. In order to illustrate this more clearly, the following two sub-sections will provide an analysis of the two overarching metaphorical traditions in economics.

3. An Analysis of Pictorial and Linguistic Metaphors in Economics

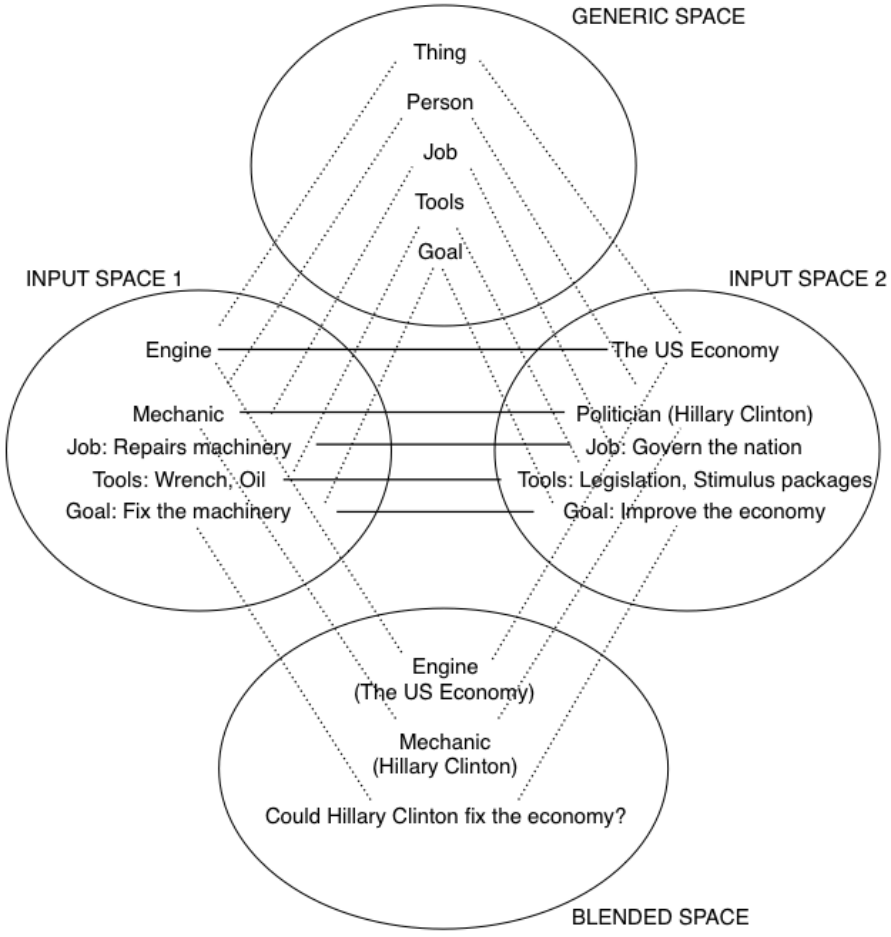
3.1 The Economy as a Machine Metaphor

The first metaphorical tradition discussed in this paper is to compare economics to a machine. Consider the two examples below. In (3) the economy is viewed as a vehicle that is progressing along a path, but is unable to accelerate due to it being stuck in a lower gear, thus restraining its progress forward. In contrast, in example (4), this machine (as in the economy, and in this case the stock market as well) has been accelerating too quickly and consequently is overheating and the government now has decided to intervene in order to "cool" or slow the economy down. As machines that overheat tend to break down, economies that overheat also tend to have problems.

(3) The economy is **stuck in low gear**, unemployment is 8.2% and the rest of the world isn't in better shape. [USA Today, June 13, 2012]

(4) The Fed's aim: To **cool**, however slightly, a potentially **overheating** economy, thereby stifling inflation before it gets started, and also perhaps to **cool down** an arguably **overheated** stock market. [PBS Newshour, April 4, 1997]

This machine metaphor can also be found in the pictorial mode of communication. In the April 23rd 2017 cover art for *The Economist*[4], there is an image of a large engine in the shape of the US with the caption, the "American economy". This multimodal metaphor is then analogically extended to include Hillary Clinton, who appears to be a mechanic holding some oil and standing next to this machine. The main caption reads "Could she fix it?". In another example, the February 8th 2018 cover art[5] displays a hotrod car on the cover. Obviously, this edition is not about car racing, but instead uses this image to exemplify the speed and power of the economy and also the unsustainability of this speed. This is closely related to the above corpus example in (4) and the dangerous situation of an overheating engine.



[4] See https://www.economist.com/printedition/2016-04-23
[5] See https://www.economist.com/printedition/2018-02-10

Figure 1. A conceptual blend of *The Economist* cover art ("Could she fix it?" April 23, 2017)
According to Fauconnier and Turner (2002), conventional source-target metaphors are prototypical of single-scope networks. These are networks where two input spaces have different organizing frames and one is projected onto the blend to provide the frame-topology to the conceptual network. For instance, in the April 23rd "Can she fix it?" cover art, the machine frame is used to help us compress our understanding of politics and economics. So in this scenario, there is cross-space mapping between the machine input, which is the framing input, and the economics input, which is the focus input (see Figure 1 for the conceptual integration network). Features from these two input spaces then get projected into a third space, which is called the blended space, where new and emergent meanings arise.

The economy is highly abstract and the role of politicians is also complex, but aligning these concepts to something more concrete such as a machine and the role of a mechanic, helps one to better conceptualize the economy. As a consequence, the verb "to fix" is easily understood, framed within this scenario. Mechanics aim to fix machines as politician aim to fix economies. At the same time, this multimodal metaphor allows for a certain amount of creative exploration in regards to the oil. What does the oil map onto in the economy input space? This is likely some political measure (e.g., a stimulus package) that will allow the economy to "run more smoothly", but this is obviously open to interpretation. Therefore, this image by itself provides good teaching opportunities to consider what measures might provide a "lubricant" in order to improve the economy.

Now consider the following example.

(5) The pending fiscal issues are so daunting, however, that economists doubt the economy can **accelerate** fast enough **to grow** its way out of its problems. [USA Today, March 15, 2005]

Example (5) is interesting in that the writer uses a machine verb "to accelerate" and the need to do this "fast", but with the goal of "growth". In short, the textual adjacency of these metaphor clusters, which reflect different conceptual structures (machine, organism), has been shown to be more common than one might expect (Kimmel, 2010). Therefore it is important to show learners that metaphorically the economy uses multiple source domains, so next I will briefly illustrate this second metaphorical tradition in economics, the economy as a living organism.

3.2 The Economy as a Living Organism Metaphor

A second common way to conceptualize the economy is to view it as a living organism, which includes viewing it as a human or a plant. For instance, in example (6) the Dow Jones

Industrial Average is personified as a living thing that can "hop", which refers to its upward movement or more literally its increase in value. A commonly found idiomatic expression in economic discourse is "shot in the arm", which refers to some form of stimulant that results in a "healthier" economy. Again, this expression is motivated by the underlying metaphor; *the economy is a living organism* like a human. In the subsequent examples below, human characteristics and features like being anemic and having stunted growth (7), hemorrhaging (8), or being in an ill state of health (9) are all used to talk about the economy.

(6) The manufacturing numbers sent the Dow on a very **healthy hop**, and Mr. Greenspan says we should not expect a big recovery, a real **shot in the arm** for the economy... [NPR, March 2, 2002]
(7) **Stunted growth** in the PC market and **anemic** corporate spending on technology. [USA Today, November 14, 2002]
(8) But some worry interest rates alone won't **cure** an economy still **hemorrhaging** jobs and corporate profits. [CNN News Sun, December 22, 1991]
(9) Under mounting pressure to **remedy** the **ailing** economy. [CNN Moneyline, November 26, 1991]

The above highlighted examples are conventional for they have been lexicalized in the dictionary, as polysemous words. That is to say, the word "hemorrhage" means a profuse amount of blood pouring out from a ruptured vessel, but also a seemingly uncontrollable loss of large amounts of something valuable like money or jobs. Now consider the following quote (10) from Representative Reid Ribble of Wisconsin who creatively and perhaps excessively exploited this source domain, a living organism, in order to talk about the federal budget:

(10) Our **bloated** and **obese** federal budget needs a **healthy** and **balanced diet**, one that **trims the fat** of overspending and **grows the muscle** of our nation's economy. [The News-Herald, July 19, 2011].

For instance, bloated refers to a physical state when part of the body (i.e., abdomen) swells with fluids or gas. The metaphorical meaning uses this swollen concept to refer to excess or having an excessive amount of something (in this case, federal spending), but importantly like the physical condition, we know this is not sustainable for it causes great discomfort. He then advises the need for this federal budget to improve its condition by going on a more balanced diet where it will lose weight and build more muscle, in short, to become healthier. Obviously though, the economy has no physical shape; it is neither obese nor muscular. Blending the framing input (the living organism) with the focus input (the economy) in order to compress our understanding of the economy by way of our understanding of the human

condition (or a more general living condition) also appears in the visual mode, as evidenced in the following descriptions of cover art from *The Economist*.

In the August 13th 2011 cover art for *The Economist*[6], which is an altering of a famous Rembrandt painting[7], the economy is viewed as a cadaver. Expanding upon this metaphor, there is a secondary metaphor where the central banker, as can be ascertained through the textual mode, is a medical doctor, holding a defibrillator. Again this cover art begs the question, what exactly does the defibrillator map onto in the economic input space? This is likely referring to any number of tools central bankers have to revive an economy such as lowering interest rates or quantitative easing (e.g., buying securities such as government bonds). Again analyzing the image using a conceptual network (see figure 2), in some ways it is similar to Figure 1, but the main difference is the framing input, which in this case uses a human body instead of a machine. In this scenario, the economy does not need to be "fixed", but "revived" since this frame deals with living things instead of mechanical objects.

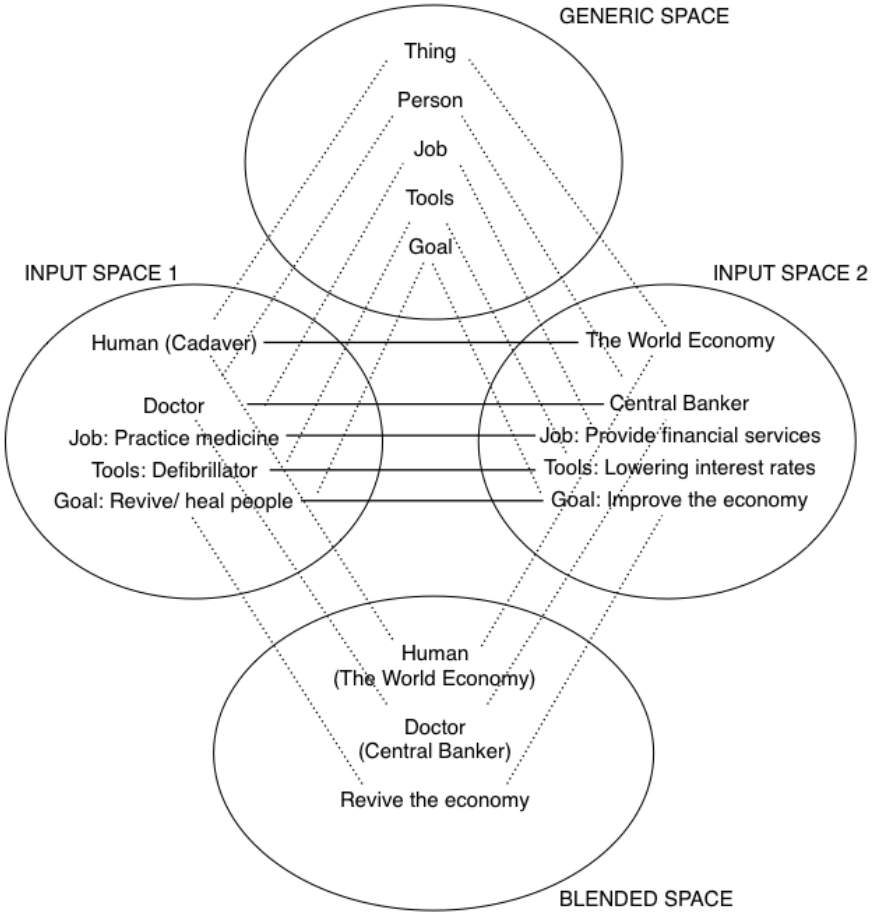


Figure 2. A conceptual blend of *The Economist* cover art ("Reviving the world economy"

[6] See https://www.economist.com/printedition/2011-08-13

[7] The Anatomy Lesson of Dr. Nicolaes Tulp; 1632 by Rembrandt (1606-69); Mauritshuis museum, The Hague, The Netherlands

August 13, 2011)

In contrast, the June 27th 2009 cover art[8] looks more specifically at a narrow part of the American economy, health care. Again in this image, health care is a living organism that currently needs medical attention. Moreover the former President of the United States, Barack Obama, is a medical doctor, who aims to inject into this living organism medicine in the form of a shot in order to revitalize the current sickly state of health care in the US (refer back to example (6) for a similar idiomatic expression). Just as receiving a shot hurts, so too does reforming a health care system. The key here is the interaction between the textual and pictorial modes of communication, which results in multimodal metaphors. These are motivated by an underlying metaphor and in this case, viewing the economy as a living organism.

It should be noted here that this living organism metaphor is not simply a matter of viewing the economy as a personified human, but the economy is also frequently viewed as a plant that can have "green shoots" and new companies within the economy can "sprout up", as can be viewed in examples (11) and (12). Moreover, small start-up companies seek "seed capital", or otherwise an investment allocated to help fund the initial stages of the company as it grows.

(11) So until China becomes an advanced export power, most of the economic **green shoots** will be pushed up by the state. [Newsweek, June 29, 2009]

(12) New companies are even **sprouting up** to offer Web-based word processors and spreadsheets. [NY Times, December 11, 2005]

4. CLIL: Creativity, Metaphors and the Case of Teaching Economics

The aim of this paper is to show the role of cognition within a CLIL framework. It was identified at the start that cognition involves creativity and metaphor shows on a small scale the creative ability of humans to link distantly related concepts together in meaningful ways. Then I used the content area of economics to show how widespread and central the role of metaphor is in understanding economic discourse. The goal was to show that this was not simply a matter of language, but that the same conceptual structures could be found in the pictorial mode, as exemplified in the cover art from *The Economist*. In this final section of the paper, I consider how this cognitive approach to metaphor is connected to teaching in a CLIL framework.

Dale and Tanner (2012) in their *CLIL Activities* book describes the language of economics and business as covering such language functions as recounting events, informing current

[8] See https://www.economist.com/printedition/2009-06-27

trends, and persuading to name a few examples. Interestingly, they overlook the central role of metaphor in these language functions despite using many metaphors as examples in their descriptions of economic language - "The market figures **dropped**"; "Shares are **rising sharply**"; "... why production **falls**"; "...bring about a **fall** in sales" (Dale & Tanner, 2012: 52-53, bold are mine). These are orientational metaphors that arise from our embodied experiences that give a concept like quantity (MORE and LESS) a spatial orientation (UP and DOWN). Therefore markets go down or up, but this downward or upward motion can take on extended attributes of this vertical motion, so "up" can include such movements as rise, but also soar, leap, and skyrocket or as mentioned in the previous corpus example (6) a "healthy hop". The point here is twofold. First, most metaphors are not random. Even creative ones are usually motivated by an underlying conceptual structure such as MORE IS UP. Secondly, explicitly teaching these structures has the potential to raise learners' awareness of metaphorical language (Boers, 2000) and hence improve their interpretation skills when they do come across more creative language. This approach fits into the "language *of* learning" Triptych in Coyle and colleagues (2010: 60-61) paradigm for communication within CLIL. In this aspect of the Triptych, it is important to develop learners' knowledge of economic discourse through corpus-based examples, in order for them to deal with vocabulary and phrases in the target language. In addition, these vocabulary items and phrases are often metaphorical and at times can be cognitively challenging for the learners (especially when using authentic material). One possible way to help scaffold learners in developing their metaphorical competence within the discourse of economics is to use visual aids that exemplify similar conceptual structures that linguistic metaphors use.

As previously stated, metaphor is not simply a matter of language and thus appears in other modes of communication like images. Moreover, a metaphor may use multiple modes to communicate a message, which results in a multimodal metaphor (as discussed in the previous section). Using pictorial or multimodal metaphors in the classroom supports the claim by Weninger and Kiss (2013) who argue that images need to be used as the explicit focus of a meaningful learning opportunity. These types of metaphors are both creative and at the same time open-ended to allow for learning opportunities to occur. That is to say, they provide opportunities for the learners to reflect on the conceptual structure motivating the metaphor, use the imagery to make associations with the metaphorical phrases in the target language, and to consider creative ways to extend and elaborate on these structures.

Below is a diagram of four key aspects that I have outlined in this paper. First cognition is closely linked to developing learners' creative thinking skills. One key aspect of creativity is the human ability to link or blend together two distantly related concepts.

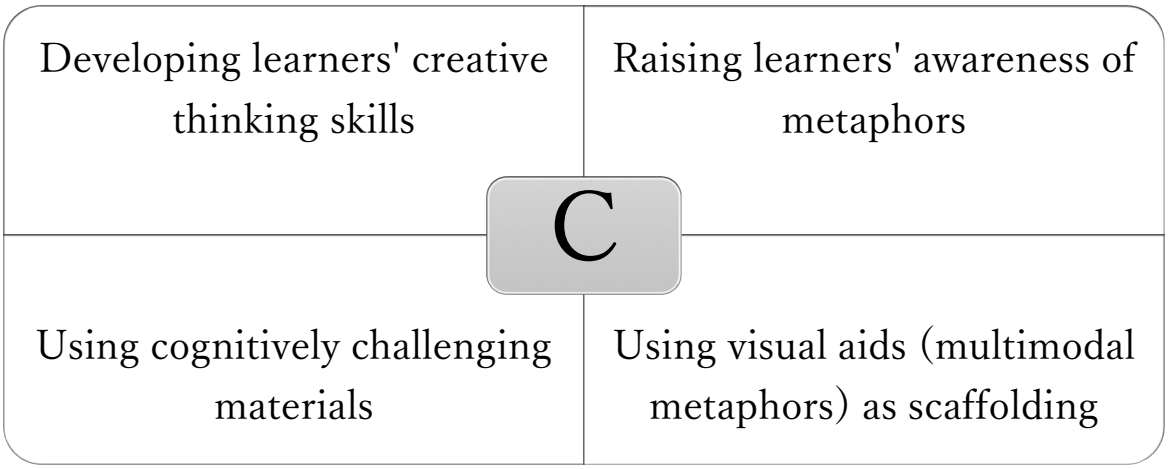


Figure 3. Cognition in CLIL: 4 key points

Metaphors are ubiquitous in language, especially in certain discourses like economics, and therefore raising learners' awareness of them is important to developing their abilities to cope with the language, as well as the content. The use of visual aids, such as multimodal metaphors found on the cover art in *The Economist*, provide important scaffolding to aid learners in thinking more about the abstract concept, the economy, through the use of metaphor. Finally, using authentic materials like the cover art and corpus examples are cognitively challenging, but also reflect the creative and conventional aspects found in natural language.

5. Possible Ways and Potential Difficulties of Implementing the 4 Key Points of Cognition into a CLIL Classroom

Implementing the ideas presented in this paper into a CLIL based practicum would involve using supplementary materials to highlight the metaphorical structures within a content-based context. This would likely be in the format of teaching vocabulary and phrases that are motivated by certain conceptual metaphors. For instance, when the economy is viewed as a machine, we know that certain machines like trains or cars move, but different machines have different potentialities (i.e., a ship has the potential to sink[9], a car has the potential to go over the edge[10], and a train has the potential to go off the track), and outside factors may impact the functioning of the machinery (as in, cause effect relationships). Consider again example (3) at the start of this paper. An economy can move forward or not. When it does not move forward, it likely is "stuck" or "stalled" or in a "low gear", but when it does move forward, that is to say, when it "accelerates", it may start to move fast and like an engine it heats up. To slow down a heated engine, or one that is moving too fast, some external force, in the case of example (4), the Federal Reserve may intervene to "cool down" this

[9] See *The Economist* June 9th 2012 cover art (https://www.economist.com/printedition/2012-06-09)
[10] As in a "fiscal cliff" also see *The Economist* December 15th 2012 cover art (https://www.economist.com/printedition/2012-12-15)

"overheating" engine (as in the economy). In contrast to an intervening Federal Reserve that fears the effects of an economy accelerating too quickly, other external forces like high gas prices might have a similar effect in slowing the economy. In example (13), this force actually "throws a bucket of cold water" on the economy, which resulted in the economy moving slower.

(13) When the price of gasoline crested over $4 a gallon, it **threw a bucket of cold water** on the economy. [Christian Science Monitor, July 28, 2008]

The following are two mini lesson activities that could be inserted at the start of a class that covers the topics of central banking (Activity 1, using material previously discussed in this article) and financial debt (Activity 2, using new material not previously discussed). Such types of activities provide insight into the metaphorical structures within the field of economics, utilizes authentic materials, and makes use of the visual mode to ground the abstract concepts (i.e., central banking).

Activity 1 The doctor & the economy (a mini-lesson to introduce the topic of a central banker)

1. Show students the Rembrandt painting first and have them work in pairs to describe the painting. For example, "It is a dark room", "A doctor is working on a body (cadaver)", "The doctor looks like he is teaching the others about anatomy", "The doctor looks like he is in control", and so forth.
2. Then show the cover art from *The Economist* (https://www.economist.com/printedition/2011-08-13) and have them discuss what features the graphic designer changed or added.
3. Have them focus on the language of the main heading "Reviving the world economy", as well as the small subheading "Stand back, I'm a central banker". Have them draw a conceptual map, one for the doctor frame and the other for the central banker frame. Have them brainstorm attributes and properties of these two concepts (e.g., hospital, patients, surgery, defibrillator, heals people, etc.; bank, investors, economic tools, interest rates, improves the economy, etc.). Have them look for connections between these two conceptual frames (e.g., hospital – bank; patient – economy; heals people – improves the economy; etc.).
4. Next, discuss in detail, the function of a defibrillator (e.g., revitalizes the life of someone who is close to death due to a sudden event like a heart attack) and what measures a central banker can do to "revitalize" a bad economy.
5. Finally, have them appraise the creativity of this cover art.
6. To extend this activity and to build students' creative thinking skills, ask students to design their own cover art in pairs or small groups. For example, the teacher could use the metaphor "the economy is a plant" and have half the groups design a cover

art that expresses a strong economy and the other half that expresses a weak economy. Ask them to include a heading for their covers. Each group then presents their cover art and at the end, the different groups compare and contrast these covers. Finally to connect this to real-world examples of economic discourse, the teacher concludes the activity with example sentences of this metaphor such as (11) and (12) in the above section. Other possible metaphorical topics include "the economy is a natural phenomenon" (see de los Ríos, 2010 for some examples of this metaphor using cover art from *The Economist*)

Activity 2 The heavy weight of a burden (a mini lesson to introduce the concept of financial debt)

1. First bring into the classroom something heavy (e.g., a dumbbell, a heavy exercise ball, a bag full of books, etc.) and pass it around the class, so students can physically experience holding something hefty.
2. Then beforehand, the teacher gathers an image for "emotional baggage" from the Internet, particularly one that shows a person dragging a heavy suitcase. Elicit from the students the connection between a heavy suitcase and past emotional experiences that are often negative (e.g., clothing – memories; "dirty laundry").
3. Discuss how this is a highly conventional idiom, but is often extended in creative ways. The creativity often reflects how this abstract psychological burden of negative past experiences is embodied, as a physical object, in this case a suitcase. Consequently this concept can take various action verbs such as "packed", "dragged around", and "hauled somewhere". This physical entity can also "weigh you down" and have a specific mass like "50 pounds", but at the same this this weight can be removed, as in the "weight can be taken off the shoulders". Some corpus examples of this are below:
    a) The Kellehers of Massachusetts wouldn't begin to know how *to pack lightly*: They're *dragging around* too much **emotional baggage**. And every summer, they *haul it all up* to Maine to their vacation home on three acres on Cape Neddick. [Christian Science Monitor, June 28, 2011]
    b) All kinds of **emotional baggage** inadvertently *gets packed* along with the camping gear, and women often are especially sensitive to both men's and women's personal issues. [Chicago Sun Times, February 12, 1995]
    c) ... they many times have a sense of well-being, and a sense of relief, and a sense of charm because they've just had *50 pounds* of **emotional baggage** *taken off their shoulders*. [NPR Fresh Air, August 12, 2010]
    d) No matter how strong you are, sooner or later the **emotional baggage** has to *weigh you down*. [Atlanta Journal Constitution, May 10, 1992]
    e) Christian Grey, who is *hauling a freight train* of **emotional baggage** from his abusive childhood. [USA Today, July 10, 2012]

4. Next ask students, how could this metaphor, *a burden is a heavy weight*, be applied to the field of economics. It is important to guide them towards financial burdens, particularly towards the concept of debt. To help them, show the June 13, 2009 cover art from *The Economist*, which depicts a child trying to crawl while attached to a massive ball and chain with the caption "Debt: The biggest bill in history". Have students think of metaphorical language that could describe the state of being in debt (e.g., weight, heavy, crush, sink, drown, etc.). Then pass out some sheets of paper that have some corpus examples of this such as the following:
    a) Wall Street's bulls ignored the crushing weight of debt on the economy and the signs of a protracted recession. [TIME, January 13, 1992]
    b) Last fall, Jennifer Gonzales, 26, felt as though she was sinking under the weight of her debt. [Cosmopolitan, August 2002 Vol. 233, Iss. 2; pg. 142]
    c) Millions of college graduates are drowning in student loan debt. [CBS Early Show, October 27, 2011]
5. Have the students draw and creatively depict these various states similar to the previously presented image about emotional baggage.
6. Finally this can be expanded to include a number of relevant economic events related to Japan. For instance, the *The Economist* cover art from November 20, 2010 depicts a young person who is struggling to hold up the red *hinomaru* of the Japanese flag, which appears to be very heavy. The cover reads "Japan's burden: A 14-page special report on the future of an ageing society". This cover preludes a discussion on the financial burdens of an ageing society, conflated with a lowering birth rate (thus the weight is on the young). Similarly the March 19, 2011 cover art shows the same red *hinomaru* with some workers dressed in cleaning gear for a nuclear accident attempting to push it up a steep hill with the simple caption "The fallout". This is still highly relevant, especially as the burden of cleaning up the nuclear reactor is a lingering financial issue for Japanese society.

The point of these activities is to raise learners' awareness of these metaphorical structures and the organization of them within the field of economics and how they motivate many linguistic expressions and vocabulary, as well as visual imagery within this discourse. Also it is important to present them not as random, irregular expressions, but rather as language that is highly conventional and following set patterns. These patterns and conventional ways of seeing the economy are often then creatively extended or elaborated on in new, playful, and imaginative ways.

There have been a few difficulties in trying to implement this cognitive approach to CLIL in previous classes that I have taught. First, learners' often come to the classroom with a set of beliefs and one of these beliefs is that metaphors are poetic and not very useful for the study of economics. Secondly, there are largely divergent discourses between using corpus

examples and the polished language of a textbook – case in point, example (10). Also as Sznajder (2010) has noted through a corpus analysis, business textbook metaphors do not necessarily overlap with a corpus sample of metaphors in business journals. In fact, in her analysis, one third of the textbook metaphors were never used in the corpus sample to which she suggests the need for metaphors for classroom instruction to be based on real language use. Consequently, this results in the instructor spending considerable time gathering these metaphors found in "real language use" and organizing them based on their shared structures. Finally, as for using pictorial metaphors, as suggested in this paper, *The Economist* does provide a good amount of material, but I have not come across any other type of images from other sources, so this does suggest a limited amount of visual metaphors available for the instructor within the content area of economics.

6. Conclusion

The 4Cs Framework is the foundation for integrating content and language learning for CLIL. Better understanding what these building blocks are and how they can be utilized within a learning environment are crucial for developing an effective CLIL method for teaching content and language. Using an interdisciplinary approach to understanding these 4Cs has potential for enriching the overall Framework. In this paper, I considered how to apply Cognitive Linguistics, specifically work in metaphor theory and multimodal metaphors, to strengthen the component of cognition within this Framework. The field of economics, especially journalistic economics, is replete with metaphors, mixed metaphors, and multimodal metaphors. Such figurative language has been shown to be problematic for many language learners (Littlemore, 2001). One way to address this, as has been suggested in this paper, is to raise the learners' awareness of the conceptual structures that motivate them and to use multimodal metaphors as a visual aid, and thus providing learners multiple modes to comprehend the content and to creatively challenge themselves in the target language.

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CLIL Teacher Education

Modelling CLIL in EMI Teacher Education Workshops to Improve Content Teaching

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Abstract
Many Japanese universities are now requiring Japanese instructors with sufficient English skills to provide English-Medium Instruction (EMI) classes. However, teaching in English is more than simply translating from one's native language. It requires the teacher to make a variety of modifications including changing input, assuring comprehension, creating an atmosphere where second language speakers feel comfortable to speak, and addressing cultural diversity and differing language levels. Poor student evaluations of three EMI undergraduate courses at a "Global 30" university prompted the development of teacher-training workshops. These workshops themselves are CLIL in design addressing the 4Cs, using the language of the subject, pedagogy, *for*, *of,* and *through* learning, and focusing teachers' attention on higher order thinking skills through active learning. More importantly, the design of the workshop imparts to the participants the main constructs of CLIL serving as a model for how these teachers can implement CLIL into their own classes. Along with the rationale for CLIL framework workshops, a variety of activities for implementing the 4Cs in faculty workshops are presented.

Keywords: 4Cs of CLIL, Faculty development, English-Medium Instruction, Content teaching, Modelling classroom activities

1. Introduction
In recent years, the Japanese Ministry of Education, Culture, Sports, Science and Technology (MEXT) has been advancing the internationalization of universities across Japan by providing grants to selected universities from 2008 through the Global 30 program and subsequent grants. This "internationalization" of campuses took many forms among the 13 universities that received funding; however, a component of this reform common to all was the development of undergraduate programs that are taught solely in English to attract foreign students, who do not have the Japanese language ability to study in the native language. This ability to attract foreign students to higher education institutions in Japan is seen as crucial since the demographics are bleak. According to The Research Institute for

Higher Education at Hiroshima University (2018), the 18-year-old population has halved in the last 25 years with approximately two million potential college students in 1990 down to one million in 2015. This caused a dramatic loss in the number of junior colleges in Japan, and the fear is that, if this trend continues unchecked, many four-year institutions will also have to close their doors.

The development of English-Medium Instruction (EMI) undergraduate programs has required numerous changes to be implemented. These changes include the building of new facilities, the hiring of new faculty and staff with English language skills, and the development of new administrative programs to support this new student population. In addition, many existing faculty members with sufficient English skills are being required to provide classes in English. Since the majority of these faculty members have little experience outside the Japanese context, and their own educational experience has been in a teacher-centered environment, they often continue teaching as they were taught. This, coupled with the fact that many university professors are much more versed in research than in pedagogy, often leaves them ill-equipped to meet the expectations of a more diverse student population.

In an effort to assess the effectiveness of the EMI courses being taught at Tohoku University, a survey of the EMI undergraduate student population was undertaken in 2015. The results of this survey showed that the students were most dissatisfied with communication with other students and the teacher in English, adherence to only English being used in classes and the quality of the education they received. Additionally, in a separate needs analysis of faculty teaching in English, faculty indicated that they were most in need of English vocabulary and expressions to use in the classroom and teaching methods to teach in English. Based on the results from these two surveys, it was determined that the students' main concerns could be addressed by providing teachers with faculty development programs targeting a student-centered approach to learning.

Considering the unique circumstances of many Japanese universities that are internationalizing campuses through the incorporation of English Medium Instruction (EMI) classes, CLIL can provide an approach to designing and implementing faculty development seminars and workshops. It can serve as a model for the teachers' own classes that not only provides best practices of teaching and learning but also helps the non-native English-speaking content teachers in these courses to understand that their teaching cannot be divorced from English language learning. These CLIL-based workshops can show faculty how they can better assist their students in learning the content by making that content as accessible as possible through English-supported instruction. While ideally the content teachers would be teaching with a language teacher each addressing their specific area of expertise, the reality is often different with EMI teachers being left to their own devices in

the classroom. As Coyle, Hood, and Marsh (2010, p. 26) point out there are some institutions that expect students and faculty to have high enough levels of English without language support.

This paper aims to provide a framework, which is based on a case study of instructors' perceived needs, student dissatisfaction with classes and the Scholarship of Teaching and Learning (SoTL) with regards to EMI classes, for designing CLIL-based faculty development workshops. The content of the workshops conforms closely to the 4Cs: Content, Communication, Cognition, and Culture of CLIL (Coyle et al., 2010). Thus, by modelling the 4Cs of the subject, pedagogy, through the language *for, of, and through* learning, participants can begin to understand ways to change their teaching to make it more effective. Examples of activities for each of the 4Cs provide a base for which other materials can be developed.

2. Literature review

The British Council, discussing EMI on a worldwide scale, indicates that few teachers have thought about the fact that teaching in English is not simply a matter of translating from their own native language into English (Dearden, 2014, p. 23). Students who are non-native English speakers need support in a variety of ways. Firstly, input may need to be modified to make the subject matter more accessible. This can be done by adding visuals, by simplifying the language used, or by providing opportunities for students to build vocabulary through glossaries or group analysis of texts. Secondly, students in the EMI classes may have varying proficiency with the English language, which needs to be addressed. Such issues as how lower-level students can be given more time to interact and digest the material presented in class and how these students can be supported better in their studies need to be considered. Thirdly, interactional modification of student comprehension often needs to take place. This may require the teacher to provide language and appropriate ways in which this type of interaction can take place.

These three points, while not exclusively related to language, are all language oriented and may require some type of language support. Dearden also identifies certain elements that one might consider as best practices of teaching and learning. These include creating an environment where students are not afraid to speak and ask questions. This concept is commonly referred to as "community building" (Wilcox, 2005; Sawyer, 2009). As many researchers (Ballard & Chanchy, 1991; Xiao, 2007; Hayashi & Cherry, 2004) have pointed out, more traditional styles of teaching remain predominant in Asia. Therefore, this type of teaching may differ from international students' previous experiences and from their expectations and may be the root cause of students' dissatisfaction with the teaching.

In addition, differences in cultures must be considered. While this may seem impossible if

students come from a variety of countries, Hall's (1976) more general distinction between high- and low-context cultures can provide a good starting point. All of these aspects need to be taken into account when considering ways in which professional development programs can be designed for non-native English speaking faculty in an EMI context.

With regards to professional development, CLIL has been recognized as an incidental way to facilitate faculty development. Sasajima (2013, p. 65) in reference to language teachers implementing a newly designed CLIL curriculum states, "teachers may begin to change the way they think about teaching and learning and improve their practice". Coyle et al. (2010, p. 24), also state that, "CLIL can act as a professional development catalyst within faculties of a higher education institution." In both of these papers, the researchers emphasize the fact that many faculty members have had little or no training in pedagogy. However, there is little in the literature that discusses ways in which the CLIL approach can be used to design faculty workshops for more direct efforts at faculty development for content teachers. This may be because of the language focus that more traditional approaches to CLIL have taken. The teacher of this type of CLIL class is often a language teacher using content as the vehicle to help improve the authenticity for the use of language and the motivation of the students. In other cases, language teachers work together with the content teachers providing support for content that will be covered in class. Of course, CLIL for content teachers would only be appropriate in certain contexts where the students in content classes have little in the way of language support.

3. EMI context at Tohoku University

The unique context of EMI classes being developed at many universities across Japan makes the CLIL approach to faculty development seminars and workshops feasible. The situation at Tohoku University will be used to exemplify how EMI classes can be constructed around the 4Cs using activities which impart the importance of each one in a class and model how teachers can put the 4Cs into practice in their own classrooms. The activities outlined in this paper are intended to exemplify how a workshop for faculty can be conducted and provide a catalyst for further materials development.

3.1 Background

At Tohoku University, EMI classes have been introduced in three faculties: Engineering, Science, and Agriculture. Each year, 30 students from countries targeted for receiving funding from MEXT, which for the most part are Southeast Asian countries, are admitted to the three programs. Thus, at any one time, 120 students are enrolled in these three undergraduate programs. The current nationalities of students in these programs consist of Chinese, Indonesian, Korean, Indian, Vietnamese, and Nepalese with African countries being included in the future. Since all of the students from these countries are using English as a second language, one of the requirements for admittance is a TOEFL iBT score of 79

(equivalent to 550 on the ITP) or higher, or a IELTS score of 6.0 or higher.

It was the belief of the faculty and administration tasked with designing these programs that with English language skills at these levels or above, students in these programs would not need English language support for their studies. It is difficult to understand how this policy was determined since even native speakers of English are required to take writing and speech classes at many universities abroad. Even though arguments were made that English language support would be necessary, and evidence such as entrance requirements for foreign students at other universities, was provided by the English language faculty, no changes to the initial plan were made. Subsequent observations from faculty teaching in these programs have shown that English language support is still a necessity for these students to adequately function in an unfamiliar academic environment.

Although new native English speaking and non-native English speaking faculty were hired to teach within these new programs, budgetary constraints restricted the numbers. Thus, many existing faculty with English language skills were also required to begin teaching their subjects in English. A rough estimate by the administration of the number of faculty teaching in the undergraduate EMI courses is 190 faculty members including faculty from the humanities whose courses students must take to fulfill the general education requirements of their coursework.

3.2 Student survey results

As one might expect, transitioning from teaching subject matter from the faculty members' native language to English was not smooth. This may have been partially due to the fact that faculty were not provided with any support in this endeavour. A survey of EMI undergraduate students' satisfaction with their coursework was conducted at the end 2015. Of the 69 students enrolled at that time, 49 (71%) completed the survey. The main question of interest from this survey was, "What did you find to be disappointing?" Two main complaints emerged from the responses that students selected. First of all, 29% of the students expressed that they could not communicate with Japanese students in English. Follow up interviews showed that this response not only reflects the lack of English ability of the students, but also the lack of opportunities afforded the students to interact within the classroom. Secondly, 25% of the students responded that they could not freely communicate with Japanese teachers in English. Rather than a critique of the teachers' English ability, this answer was related to the teacher-centered approach of the class and the general lack of communication between the students and the teacher. These two issues would seemingly be caused by the teachers simply teaching the subject content as they were accustomed to doing in Japanese, which tended to be more teacher-centered and, thus, less community building in focus.

4. Project design

The goal of the project was to design workshops to help faculty members tasked with teaching English understand the best practices of teaching and the differences that need to be considered when teaching in English. The initial phase of the project was to decide on what the needs of the teachers in these classes would be. This was done in two ways. Firstly, a faculty needs analysis was conducted. Of 2,445 total faculty members, 473 (20%) who teach in English responded to the survey. As part of the questionnaire, the participants were asked what they felt was necessary in faculty development workshops. Four areas, by far, outranked other responses. These were: 1) English vocabulary and expressions used in class (62.1%); 2) Teaching methods for English-medium classes (54.7%); 3) Strengthening general English ability (47.1%); and 4) Visiting and experiencing classes in English (46.0%).

Based on this faculty needs analysis and on Dearden's (2014) observations about EMI classes that were highlighted earlier, three specific areas that needed to be addressed in the workshops were identified. They consisted of a culture component, a teaching skills component, and a language component. Where these three components intersect is the area that becomes pertinent to the EMI classroom. This is depicted in the Figure 1 below.

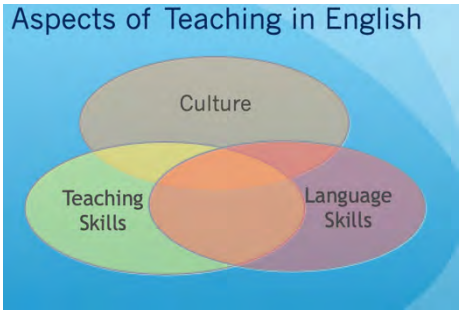

Figure 1. EMI teaching: the intersection of culture, teaching skills, and language skills

Within the culture component, issues on a broad perspective rather than between individual countries and how these issues impact the classroom were of interest. Thus, the cultural distinction based on high-context and low-context cultures introduced by Hall (1976) was adopted to emphasize organizational features of English in comparison with Asian countries since most of the students in the EMI classes come from this region of the world. In addition, the concept of positive reinforcement was included because of the workshop designer's experience with raising children in Japan where the negative reinforcement approach toward improvement is often favored.

It was determined that within the teaching skills component of the workshops the basics of best practices in teaching and learning needed to be presented since most of the teaching faculty have had little to no training in pedagogy. Thus, the difference between teacher-centered teaching and student-centered teaching and the benefits that can be achieved by

incorporating some student-centered activities into one's teaching were selected to provide a foundation of best practices of teaching and learning. By understanding how this approach can increase students' motivation and facilitate their learning, teachers would be more likely to consider trying new approaches. In addition, issues related to classroom management such as wait time, consensus building, and student grouping were included along with fundamental concepts about community building.

As for the last category of language, vocabulary of the syllabus was selected as a good starting point since all of the teachers would need to be able to introduce their syllabi to the students on the first day. This also helped to ensure that all faculty members were familiar with key concepts associated with good teaching practices. In addition, speech acts emphasizing politeness in the classroom were deemed to be important since teacher-student interaction would have an impact on how the students felt about their classroom experience, thus playing a role in the community building aspect of the class.

5. The approach for conducting the workshops

Initially, there was no preconceived approach to how these workshops would be taught. However, the similarity between what was identified as being necessary to conduct the EMI workshops and the 4Cs was clear. The "Content" for the workshops would consist of the components listed for the culture, teaching skills, and the language components. The "Cognition" component would be realized through self-analysis of the teachers' own learning preferences, a focus on the outcomes they want to achieve through their classes, and the use of Bloom's taxonomy to help them access higher order thinking skills in the activities and outcomes of their classes. Just as students need to be able to use information in higher order thinking set forth in Bloom's Taxonomy, teachers in the workshops are pushed to use the same higher order thinking skills as a model for how their students learn best. The "Communication" component would include speech acts of the classroom for politeness, vocabulary of the syllabus, and effective group work. Lastly, "Culture" would address the diversity that could be found in any classroom, positive reinforcement, organizational styles in high- and low-context cultures, and student perceptions of good teaching. Each component to the 4Cs is detailed below to clearly show what the objectives for each component would be. Representative activities for each of the 4Cs components are provided in the appendices to give teachers faced with similar faculty development issues a starting point for their own materials development.

6. Outcome statements for the workshops

As with other aspects of good teaching, helping teachers understand how to write effective outcomes is essential. By clearly defining what they want students to be able to do with the information they are imparting, teachers can align their courses more effectively ensuring these desired outcomes are practiced and assessed throughout the class. The objectives in

the workshops present a model for the participants. In addition, activities used through the workshops provide further exemplification of how the participants can structure their own classes. While the intention is that the sample activities will be used as a catalyst for teachers to develop their own materials for similar workshops, further information and activities regarding the workshops developed for the Tohoku University context have been published in "Active Learning Handbook for English-Medium Classes" (Enslen, 2018). A host of other research related to best practice of teaching and learning, such as Felder & Brendt (2016), Lang (2016), and McKeachie (1999), can provide further ideas for developing effective classroom activities for each of the Cs of CLIL.

6.1 Content objectives

The participants will be able to:

1. build an understanding of best practices of teaching and learning, i.e. teacher-centered versus student-centered classrooms, and active learning.
2. gain an understanding of the difference of teaching in English with respect to culture, classroom management, and language.
3. share expereinces of "community building" and build knowledge of more ways to accomplish this.
4. understand the learner-centered syllabus and how it can be a tool to enhance learning.

The content serves as the vehicle through which the other Cs are realized and thus it is not feasible to present activities only related to this one area. Thus, "community building" has been selected as an example in Appendix A because the concept cuts across all aspects of the content in the objectives listed above. Community refers to the sense of belonging to a group or being valued in a group that research has shown can have a huge effect on student retention and success in the classroom (Moser et al., 2015). In addition, belonging both academically and socially were reported as one of the key characteristics of academically tenacious students (Dweck, Walton, & Cohen, 2014). Many aspects of community also come up when students are asked to describe effective teachers and what students value most in a teacher.

Some of the content of the workshops comes about through awareness of what the participants do not know. Thus, to some degree there must be flexibility and on-the-spot decision making with regard to this component.

6.2 Cognition objectives

The participants will be able to:

1. self-analyze how as learners they learned best and use this information to inform their teaching decisions.
2. develop critical thinking skills and create outcomes by having the participants

develop questions at each level of Bloom's Taxonomy.

3. use outcomes and curricular alignment to target higher level thinking.

A significant point for teachers to understand for designing outcomes in their classes is Bloom's Taxonomy and moving students away from just lower-order thinking skills represented in the lower levels of figure 2 to the higher-order thinking skills toward the top of the diagram. The higher one moves in Bloom's Taxonomy the more cognitively taxing the task becomes. Thus, instead of having students just remember information, which is common in the more teacher-centered classroom, teachers want students to be able to take the information, or content, from their classes and use that information in some way. By giving them opportunities to use this information for higher-order learning in our classes, we are not only giving the students practice with how they will eventually need to use this information, we are giving them opportunities to critically think about and manipulate the information, which helps imbed that information into deep learning. In the workshops, the goal is for the teachers to understand Bloom's Taxonomy (Bloom et al., 1956) and how to write learning outcomes so that the learners are using the information from class in higher-order thinking tasks to some extent. To do this, the teachers must first understand what Bloom's Taxonomy is and what it represents. They can then be challenged to think about what they want students to be able to do with the information they are presenting in class and write learning outcomes using verbs in Table 1 below that are associated with that level of cognition from Bloom's Taxonomy.

Figure 2. Bloom's Taxonomy Revised (Anderson & Krathwohl, 2001)

Table 1. Examples of verbs associated with each level of Bloom's Taxonomy (Bloom et al., 1964)

Remembering	define, describe, identify label, list, name, repeat, select
Understanding	convert, discuss, explain, restate, locate, paraphrase, translate,
Applying	apply, carry out, demonstrate, employ, predict, solve, use
Analyzing	analyze, calculate, compare, contrast, criticize, question, test
Evaluating	appraise, determine, estimate, evaluate, judge, score, value

Creating	create, design, develop, construct, devise, formulate, plan

The verbs presented above are just a small sampling from each category. A google search of "Bloom's Taxonomy verbs" will supply any interested person with an exhaustive list of possibilities.

A representative example of activities that can be used for this section of the workshop is provided in Appendix B.

10.3 Communication component (Language of/for/through learning) objectives

The participants will develop language *of/for/through* learning by being able to:

1. build awareness of community in the classroom and the language to effectively engage students to achieve community.
2. enhance their awareness of politeness in the classroom and build understanding of proper ways to formulate speech acts, such as giving advice and making requests.
3. describe their syllabi to students by building vocabulary related to a syllabus.

While many of the objectives for communication listed above may be intuitive, focusing on politeness and speech acts in the classroom might not be. A point that falls within community building and making students feel like they are a valued member of that community is how we, as teachers, address the students in our classes. The classroom is often a very busy place with the pressure of wanting to cover a certain amount of content in a specified amount of time. This can often lead to the use of interrogatives and commands. Thus, it is important to provide an explanation of common speech acts that come up in the classroom and how to express these speech acts with a moderate level of politeness. Again, this is best done in a way that requires active learning and higher level thinking from the participant. This once again provides a model of how teachers can do their own activities with their students.

The formation of certain speech acts, such as suggestions and requests, can have a dramatic effect on the politeness being conveyed. Thus, teachers need awareness of speech acts because level of politeness can have an impact on community building in the classroom. An example of how to build awareness of speech acts is provided in Appendix C.

Culture objectives:

The participants will be able to:

1. identify issues of diversity that are present in any classroom.
2. understand the importance of positive reinforcement to learning.
3. build knowledge of organizational style related to high- and low-context cultures.
4. analyze student perceptions of good teaching and to understand what students value the most in teachers.

Focusing on diversity and culture in the classroom often leads to focusing on each student's cultural background, which is not particularly helpful. It is seemingly impossible for the teacher to take into consideration nuances related to each student's cultural background individually. However, taking a more global approach to culture can provide some insights on teaching. Hall (1976) provides a model that puts cultures on a continuum of high-context to low-context. With most native English speaking countries congregating toward the low-context end of the spectrum and most Asian countries gathered at the high-context end.

One difference that Hall identifies and that is particularly relevant to our context is the organizational styles of these two groups. Low-context cultures rely on much more explicit forms of communication. Thus, English is a very structured language with the writer being responsible for communicating the message. In contrast, high-context cultures tend to have less structure with the main point of the message coming toward the end of a message relying on the reader to take responsibility for interpreting the message.

In low-context cultures like the United States, schools teach from an early age the importance of structured writing with thesis statements and topic sentences and the need to give clear background for one's writing assuming no prior knowledge of the reader (Hinds, 1987, 1990). Having the participants identify the elements of the five-paragraph academic essay, such as the thesis statement in the introductory paragraph, the topic sentences in the supporting paragraphs, and the concluding paragraph, can help them understand how to structure their own lectures. This can be done through creating outlines from essays given to the participants.

Appendix D provides an~~d~~ example of how one of the culture objectives can be realized through a workshop activity.

11. Discussion

The main principles of CLIL include authenticity of the tasks, multiple focuses, active learning, a safe learning environment, and scaffolding (Mehisto, Marsh, & Frigols, 2008). Each of these components have been addressed and modelled throughout the workshops and seminars designed to improve teaching in the EMI classes. The authenticity of the workshops is incorporated through the focus on pedagogy and best practices of teaching and learning presented through SoTL. The workshops are multi-focused in that they address the understanding and analysis of the content, encourage group work and interpersonal communication, and develop discussion skills. Active learning is not only practiced in the workshops, but is also a central component to the content and authenticity. The development of a safe learning environment is modelled and developed through the use of icebreakers and classroom community building. Finally, scaffolding is incorporated through peer

feedback in the form of brainstorming and vocabulary clarification, and teacher feedback. The CLIL-design of these workshops serves to give the participants a basic understanding of how using a similar CLIL design in their own teaching can improve their classes.

A survey regarding the participants' satisfaction with their experience in the workshop was conducted at the end of each workshop. Based on the results from these surveys, not only do the participants feel that they are learning new and useful information but they also realize the need for continued learning for the success of their teaching. The feedback received from a more seminar-oriented presentation for faculty and graduates from the Department of Engineering is provided below as a representative example of the types of feedback that these workshops received.

The following results are based on 45 participant responses.

Table 2. Post-Workshop Questionnaire Results

Statements	A	SA	N	SD	D
I learned new information or could get a new perspective about teaching.	27	17	1	0	0
I would like to utilize what I learned in my classes.	27	16	2	0	0
The workshop/seminar was good.	35	10	0	0 0	0
I would like to take more workshop/seminars about teaching in English.	29	12	4	0	0

A = Agree; SA = Somewhat Agree; N = Neither Agree nor Disagree; SD = Somewhat Disagree; D = Disagree

The participants also provided comments about their impressions of the seminar/workshop. Some representative examples included:
"I didn't have a good model for active learning, so this seminar was a good opportunity."
"Regardless of English or Japanese, it was useful for all aspects of a class."
"I understood the simple ways that active learning can be added to classes and the influence it can have. (I think all professors should attend.)"

8. Conclusion

The main goal of this paper was to provide a framework based on the 4Cs of CLIL for designing EMI faculty development workshops and seminars. This framework consists of culture, classroom management, and language components. A further aim was to provide the objectives and representative activities as they relate to the 4Cs. This in turn can provide a base from which teachers can build upon to develop meaningful faculty development

workshops for their own contexts.

The creation of undergraduate majors in English at many universities in Japan has lead to a disconnect between the ways teachers are used to teaching and the expectations of what students feel effective teaching is and what should be taking place in the classroom. Most faculty members come from a research background with little or no education in pedagogy and, thus, rely on the way they were taught as the basis for their own teaching. This leads to traditional, teacher-centered practices. To help teachers understand the best practices of teaching and learning in distinctive contexts, universities need to provide their faculty with professional development opportunities. This is especially true for faculty teaching courses in English since the experiences and expectations of the students are more diverse.

The 4Cs of the CLIL framework provide a structure for workshops targeting content faculty who are left to their own devices in trying to make the content of their courses more accessible to learners who are non-native speakers of English. Faculty development workshops can be designed based on the 4Cs model so that the participant teachers are not only learning about the concepts that the 4Cs framework is based upon but also having those concepts modelled for them through the activities they are asked to participate in during the workshop. The activities described in the appendices are samples of how the 4Cs framework can be used to help faculty internalize the concepts and not just learn about them.

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Appendix A

Content Component Activity: Community Building

Icebreaking activities are an important way to not only get everyone in the class to become familiar with one another but also to introduce topics and model classroom behavior and expectations for the participants' own classrooms. Eggleston and Smith (2014) point out that the best activities are targeted to the subject matter and the specific class and are varied. In their article, they also provide ideas on icebreakers for psychology classes, but a variety of ideas can be found through a simple google search or by referring to the many resources on teaching such as McKeachie (1999). For the workshop at Tohoku University, the activity below has been developed.

The icebreaker can also serve as a model for conducting group discussions by having each of the groups decide upon a group leader and other roles such as note-taker and time keeper, and then explaining each role for the group. The workshop facilitator can model how the teachers can organize groupwork within their own classrooms. Group work does not just happen. Without assigning roles and leaving it up to the group to decide how to proceed, precious time is often lost and the purpose of the activity can be undermined. This is something that is important to make explicit to the participants.

Workshop Icebreaker
Directions: In your groups, take turns introducing yourselves by addressing the following points.
1. Give a self-introduction including something unusual or unexpected about yourself.
2. Describe the course you teach in English, i.e. class size, nationalities of students, and approach to teaching.

At the alloted time, the workshp facilitator can ellicit responses to the last point and make a list of the problems each group has identified. This list can then be used to point out how the workshop will help the participants in these specific areas making the relevance more obvious.

Community building goes far beyond simply getting the participants, or students in a classroom, to get acquainted with one another through icebreakers at the beginning of the class. Some other important points are listed below with some tips about how these can effectively be modeled within a workshop setting so that teachers can see possibilities for how they might incorporate these ideas into their own classes (McGlynn, 2001).

1. Learn the students' names

   While this seems like a common sense approach, it is easy for a teacher to dismiss this aspect of community building because of class size. However, simple tent name cards can be made out of index cards and students can use these to not only help the instructor remember names but also to help group members to speak directly to each other when discussions in class take place. In the workshop setting, participants make a similar name card for the same reasons.

2. Engage with students informally

   By going to a classroom a few minutes early or staying after the class has finished to interact informally with the students, the teacher can help build a more relaxed relationship with the students, make the students more comfortable, and give the sense that the teacher is more approachable. There is always something about the students, such as the food they are eating, what they are studying, or what happened to them, that the teacher can ask them about. This is also a strategy that one can use in workshops not just to make the participants feel more comfortable but also to help the teacher feel the same way.

3. Provide positive reinforcement

   Students are much more likely to want to engage with the teacher or be involved in classroom discussions if their efforts are appreciated rather than demeaned in any way. Students' cognitive work is affected by how students feel about their intelligence and about their abilities (Dweck, 2008). Positive reinforcement is often a subtle thing that can be expressed in the language that one uses. While the participants may be aware of how to show positive reinforcement, it is not something they may put conscience effort toward. Thus, the workshops contain a section where the groups try to come up with ways to express different scenarios in positive ways.

Appendix B

Cognitive Component Activity: Critical thinking about Bloom's Taxonomy

Once the concept of Bloom's Taxonomy is presented, the participants can be challenged to undertake some higher-order thinking of their own. Firstly, participants can be asked to analyze outcome statements from other teachers' syllabi to determine what level of Bloom's Taxonomy is being ellicited. These outcome statements can be from one specific field or can be culled from various fields depending on the audiences you are addressing. Felder and Brent (2016, p. 33) give some examples related to STEM in their book. However, syllabi can be found online and outcome statements can be extracted for this activity or the instructor can create original outcome statements about a specific topic. An example of the latter is provided below for illustration. The learning outcomes can be randomly mixed and the workshop participants can be asked to decide which level of Bloom's Taxonomy each is addressing.

Table 2. Tropical Cyclone Intensity Scale

Remembering	List the six intensity classifications of the Tropical Cyclone Intensity Scale (TCIS)?
Understanding	Indicate which TCIS level a storm fulfilling the necessary criteria for a tropical cyclone and having sustained wind speeds of 55 knots would be classified as?
Applying	Apply the TCIS to the data provided for a weather system, what (if any) classification should it receive and why?
Analyzing	Compare and contrast the storm data provided with the six main requirements for tropical cyclones. Do you believe there is a high likelihood of a tropical cyclone developing? Why or why not?
Evaluating	You have been given the data and forecast made from that data for a typhoon. Critique the forecast based on the data provided.
Creating	From the data sets provided, determine the typhoons path and predicted intensity for a weather forecast.

Appendix C

Communication Component Activity: Making Suggestions

Levels of politeness in English are often subtle and difficult for non-native speakers of English to comprehend. Thus, focusing on common speech acts used in the classroom can help teachers be more polite, which, in turn, will help them achieve more community in their classes.

Direct Suggestions

* You should include an example of …
* That's not right. You ought to have …

Directions: In your groups, discuss how you could soften these statements by turning them into indirect suggestions.

The explanation given to groups before having them do this task is that "should", "ought to", and "had better" are often taught in English classes as ways of making suggestions but in actuality native speakers of English would seldom use these modals in face-to-face communication with one another because these statements sound direct, and thus rude. It is often possible to use direct suggestions in writing since the message is often not directed at the person it is intended for but rather as an explanation of other possibilities. How can these statements be softened into indirect suggestions for politeness? After giving the groups time to work and elliciting responses from each group, this is followed up with the slide below.

Indirect Suggestions

How about…?	Have you thought about…?
What about…?	It might be a good idea to…
Why not…?	If I were you, I would…
Why don't you/we…?	

Not only do these indirect suggestions soften the advice but also because indirect suggestions are often in the form of questions they open up the door for students to have a discussion about the issue. Other speech acts are handled in similar ways.

Appendix D

Culture Component Activity: Diversity Brainstorming and Teaching Effectiveness

One way to lead into a discussion on cultural issues within a class is to have the participants brainstorm diversity issues they face in their native language classes. Then, they can think about how a more culturally diverse student body affects these dynamics. Workshop participants often identify a wide range of categories including, but not limited to, gender, religion, prior knowledge, motivation, interest in the subject, ability, expectations, and culture. There is also a general understanding that the latter two, expectations and culture, become much more pronounced in a culturally diverse classroom. The discussion of expectations provides an opportunity to review the research by Delaney et al. (2008) and emphasize the connection between community building within the communication and the cultural aspects. The categories, which students selected for effective teachers in the research from Delaney et al. or other similar research on teacher effectiveness, can be presented randomly as has been done in the exercise below. Participant can then brainstorm from their own experience what they think the top three responses would be.

Characteristics of Effective Teachers

Professional	Engaging	Respectful
Communicative	Humorous	Approachable
Organized	Knowledgeable	Responsible

What are the top three characteristics of effective teaching from your perspective?

1. _____
2. _____
3. _____

The facilitator of the workshop can then follow up with the ordering of the categories according to the research (provided below) and provide further clarification about what might be included within each category.

1. Respectful
2. Knowledgeable
3. Approachable
4. Engaging
5. Communicative
6. Organized
7. Responsible
8. Professional
9. Humorous

This activity gives participants a chance to compare their own views about good teaching with those of a more international student body, thus, helping the teachers to find gaps in their perception.

A Study on the Challenges and Concerns of Elementary School, Junior High School, and High School Teachers Working with CLIL

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Abstract
This study focuses on CLIL teachers. The aim of this research is to explore the feelings and thoughts of teachers after completing a CLIL lesson and to analyze problems that have not yet been clarified through sixty-minute interviews of eight elementary school, junior high school, and high school CLIL teachers. From the results, it is seen that students have a variety of thoughts during CLIL lessons, and they can learn authentic and broad content by incorporating learning from other subjects with a desire for knowledge. Teachers lack confidence in their ability to create CLIL lessons independently and their current English proficiency. In addition, they think that communication with other subject teachers is very important. They also express a need for appropriate judgement regarding situations that may arise in the CLIL classroom. Being a competent CLIL teacher who can consistently provide effective lessons is not easily achieved; even experienced CLIL teachers cannot always achieve this, however desirable creating consistently effective lessons might be.

Keywords：CLIL Teachers, Challenges, Concerns, Content.

1. Introduction

A plan for implementing English education reform corresponding to globalization was announced by the Ministry of Education, Culture, Sports, Science and Technology (MEXT). As each step of English education in elementary, junior and senior high school is to be enriched, major reforms are being carried out to improve student's English proficiency level. In order to implement this reform (coined the New Course of Study), from 2020 English in elementary schools will follow the required New Course of Study curriculum.

Within these reforms, MEXT (2015) highlights the following three abilities and capabilities as educational aims: (1) What do you know and what can you do? (individual knowledge and skills), (2) How to use what you know and what you can do, (thinking ability, judgement ability, power of expression, etc.) and (3) How to engage with society and the world, and live a better life (aptitude for learning, and an understanding of human nature etc.).

According to the New Course of Study (MEXT, 2017), throughout a student's entire foreign language education the skills and knowledge necessary for actual communication (thought, judgement and expression) are of more importance than the acquisition of vocabulary and grammar knowledge. Understanding of learning content deepens through the repetition of these three skills, and it is shown that it is necessary to cultivate each quality in relation to each other. Classes in CLIL are an effective means for children and students to cultivate thinking, judgement and expression ability, and for these reasons, CLIL lessons should be carried out daily.

Content and Language Integrated Learning (CLIL) is "a dual-focused educational approach in which an additional language is used for the learning and teaching of both content and language" (Mehisto, Marsh & Frigols, 2008, p.1). Through an analysis of the practices and research carried out in Japan, CLIL lessons have been shown to increase students' motivation (Yamano, 2013; Nakata, 2016; Ito, 2018a, 2018b). However, there is not an abundance of practical examples of CLIL lessons found in Japan. In addition, teachers (especially elementary school teachers) are not confident in their English proficiency. As teachers must teach lesson content in English, only a small percentage of teachers feel that they can teach CLIL lessons. Therefore, this research aims to investigate and clarify the challenges and concerns of teachers in CLIL practice, to enable not just a select number of teachers but all teachers to teach CLIL lessons confidently.

2. Background

2.1 Skills required for CLIL teachers

What skills are required for CLIL teachers? Table 1 shows the competences required of a CLIL teacher, according to Marsh et al. (2001) and Papaja (2013). According to Table 1, sufficient working knowledge of the target language is a requirement. Papaja (2013) argues that "One of the most important abilities of the CLIL teacher is second language competence"(2013,p.148) . CLIL teaching demands much more than the ability to speak or understand a particular language. Whether one is dealing with native or non-native speakers of a given language, the question of linguistic competence in the *context of teaching* remains a key issue. Good linguistic skills in the target language are necessary. Teachers who teach CLIL need to be linguistically aware and possess insight into how language functions, in addition to being able to use the language as a tool in the classroom. However, most elementary school teachers in Japan do not have advanced English language management ability compared with their colleagues at junior high school and senior high school.

Table 1. The competences required of a CLIL teacher

a) LANGUAGE/ COMMUNICATION	– sufficient target language knowledge and pragmatic skills for CLIL, – sufficient knowledge of the language used.
b) THEORY	– comprehension of the differences and similarities between the concepts of language learning and language acquisition.
c) METHODOLOGY	– ability to identify linguistic difficulties, – ability to use communication/interaction methods that facilitate the understanding of meaning, – ability to use strategies (e.g. repetition, echoing/shadowing etc.) for correction and for modelling good language usage, – ability to use dual-focused activities which simultaneously cater to language and subject matter.
d) THE LEARNING ENVIRONMENT	– ability to work with learners of diverse linguistic/cultural backgrounds.
e) MATERIALS DEVELOPMENT	– ability to adapt and utilize materials, – ability to select complementary materials appropriate to a given topic.
f) ASSESSMENT	– ability to develop and implement evaluation and assessment tools.

(Adapted from Papaja, 2013)

Table 2. Target language competence for teaching CLIL

AREAS OF COMPETENCE	COMPETENCES	INDICATORS OF COMPETENCE
Target language competences for teaching CLIL	Using Basic Interpersonal Communication Skills (BICS) (Cummins)	• Can communicate using contemporary social registers • Can adjust social and academic registers of communication according to the demands of a given context
	Using Cognitive Academic Language Proficiency (CALP) (Cummins)	• Can read subject material and theoretical texts • Can use appropriate subject-specific terminology and syntactic structures • Can conceptualise whilst using the target language
	Using the language of classroom management	• Can use target language in: - group management - time management - classroom noise management - giving instructions - managing interaction - managing co-operative work - enhancing communication
	Using the language of teaching	• Can use own oral language production as a tool for teaching, through varying: - registers of speech - cadence - tone and volume

	Using the language of learning activities	• Can use the target language to: - explain - present information - give instructions - clarify and check understanding - check level of perception of difficulty • Can use the following forms of speech (Barnes, Mercer, et al.): - exploratory - cumulative - debate - critical - meta - presentational
	Using Basic Interpersonal Communication Skills (BICS) (Cummins)	• Can communicate using contemporary social registers • Can adjust social and academic registers of communication according to the demands of a given context

(Adapted from Bertaux, Coonan, Frigols-Martín and Mehisto, 2010)

In addition, suggestions for CLIL faculty competency are also found in “THE CLIL TEACHER'S COMPETENCES GRID” by Bertaux, Coonan, Frigols-Martín and Mehisto (2010). Among them is “Target language competence for teaching CLIL” and it is shown as “Using the language of learning activities”. Table 2 summarizes the target language competence required for CLIL. For Japanese teachers to achieve the above “Competence for teaching CLIL”, it is necessary to consider CLIL-focused language training programs.

2.2 English proficiency in CLIL lessons

The New Course of Study states that English classes are generally carried out in English in junior and senior high schools. In CLIL lessons there is a need for teachers to promote both technical content and language development at the same time (Watanabe, Ikeda & Izumi, 2011). The Core Curriculum (Tokyo Gakugei University, 2016), also found in the New Course of study, summarizes teacher’s English proficiency. Elementary school teachers in particular experience anxiety about their English proficiency. According to a survey carried out by Yamano (2013), the following problems have been pointed out:

(1) The difficulty teachers face using English which is appropriate for student’s developmental stage and individual situations.
(2) The tendency that the amount of vocabulary in the learning language and the difficulty of the introduced vocabulary will increase when matching content to the cognitive level of students.
(3) The possibility of heavy use of Japanese.
(4) The amount of time and effort required and the difficulty in creating CLIL teaching plans and materials.
(5) The introduction of content that is thought to be difficult for children in English.
(6) The anxiety experienced by the teacher while teaching a lesson that incorporates further thinking activities.
(7) The burden that is placed on teachers who must incorporate CLIL’s 4C principles in teaching plans.

How do teachers who are currently teaching CLIL lessons feel about these above issues? Do they agree they are problematic? What are they doing to overcome the problems and issues that they have? Interviews were carried out in order to clarify these points.

2.3 Deeper Learning in CLIL

Development of higher-level thinking skills is required in addition to teacher’s target language ability development. The thinking skills necessary for CLIL are described in Bloom’s taxonomy (1956) and revised by Anderson and Krathwohl (2001). In the taxonomy, these skills are divided into higher-level and lower-level skills (Table 3). It is necessary for

CLIL teachers to create an environment conducive to higher-level thinking skills.

Table 3. Bloom's Taxonomy

Creating	Putting elements together to form a coherent or functional whole; reorganizing elements into a new pattern or structure through generating, planning, or producing. Creating requires users to put parts together in a new way or synthesize parts into something new and different creating a new form or product. This process is the most difficult mental function in the new taxonomy.	Higher Order Thinking Skills
Evaluating	Making judgments based on criteria and standards through checking and critiquing. Critiques, recommendations, and reports are some of the products that can be created to demonstrate the processes of evaluation. In the newer taxonomy, evaluating comes before creating as it is often a necessary part of the precursory behavior before one creates something.	
Analyzing	Breaking materials or concepts into parts, determining how the parts relate to one another or how they interrelate, or how the parts relate to an overall structure or purpose. Mental actions included in this function are differentiating, organizing, and attributing, as well as being able to distinguish between the components or parts. When one is analyzing, he/she can illustrate this mental function by creating spreadsheets, surveys, charts, or diagrams, or graphic representations.	
Applying	Carrying out or using a procedure through executing or implementing. Applying relates to or refers to situations where learned material is used through products like models, presentations, interviews or simulations.	Lower Order Thinking Skills
Understanding	Constructing meaning from different types of functions be they written or graphic messages or activities like interpreting, exemplifying, classifying, summarizing, inferring, comparing, or explaining.	
Remembering	Recognizing or recalling knowledge from memory. Remembering is when memory is used to produce or retrieve definitions, facts, or lists, or to recite previously learned information.	

(Adapted from Anderson and Krathwohl, 2001)

3. The Present Study

3.1 The purpose of the study

The purpose of this study aims to examine the following:

(1) To explore teacher`s thoughts and feelings after a CLIL lesson has been carried out.
(2) To analyze issues and problems which arise through CLIL classes and the resulting concerns of teachers.
(3) To make suggestions for future CLIL promotion.

For the above purposes, interviews of elementary school, junior high school and high school faculty members with CLIL experience along with an additional interview with a CLIL researcher from the National Institute of Technology were carried out. Throughout the interviews, researchers explored what the teachers feel after experiencing a CLIL lesson, analyzed problems that teachers encountered, and recorded the interviewee's thoughts on promoting CLIL in the future.

3.2 Participants

In order to analyze how CLIL teachers feel about the lessons and effectiveness of CLIL, interviews were held with eight individuals: three elementary school teachers, three junior high school teachers, and two high school teachers. Each interview was about sixty minutes in length, and were conducted in May, June and July 2018. Table 4 shows practical information of the eight teachers: they range in experience from 5 years to 24 years and are mainly secondary level English teachers and elementary homeroom teachers. A homeroom teacher at the elementary level in Japan is fully responsible for one class of one grade: with the exception of a class taught by a special teacher (for example in the case of a music class in a school which employs a music teacher), the homeroom teacher is responsible for all lesson planning and instruction in each subject the class is required to study. One of the junior high school interviewees is a P.E. teacher with 12 years teaching experience. After the eight interviews were carried out, the researchers then posed the same questions to an instructor from the National Institute of Technology. As classes at the National Institute of Technology resemble university classes rather than high school classes, those answers have not been included in the data, but are instead compared to the answers of other interview subjects.

Table 4. Participants' Profiles

	Institution	Teaching Experience	CLIL Experience	Subject	Interest
A	Elementary school	6 years	5years	Homeroom teacher	ESD, Japanese culture
B	Elementary school	16 years	4years	Homeroom teacher	Japanese traditional culture
C	Elementary school	22 years	10years	Homeroom teacher	ESD, Math, Music
D	Junior high school	12 years	4 years	English	Biology, Civics
E	Junior high school	24 years	7 years	English	Music, Art
F	Junior high school	12 years	1 year	P.E.	Sports,
G	High school	8 years	5 years	English	Music, Home Economics
H	High school	15 years	8 years	English	Inquiry activities
I	National Institute of Technology	5 years	5 years	English	Computer Science, Creative Design and Manufacturing

3.3 Procedure

The individual sixty-minute interviews were carried out in May, June and July 2018. The interview data was then analyzed qualitatively. The analysis was performed using Steps for Coding and Theorization: SCAT (Otani, 2008, 2011). Otani mentions that the SCAT analytical method is a developed GTA (Grounded Theory Approach) method which is a qualitative research method involving the construction of theories through methodical gathering and analysis of data (Martin & Turner, 1986). The SCAT method was chosen as it is "applicable for analyses of small scale data as represented by one case or in the example of open-ended questionnaire responses. The significance of the method is suggested in its explicit process of analysis, its smooth guidance towards the step of analysis, the enhancement of the reflective quality of critique and falsifiability, and the integration of theoretical coding and qualitative data analysis" (Otani, 2008, p.44). SCAT consists of four coding steps in which the researcher edits segmented text of interviews or questionnaires. The four coding steps are as follows:

(1) Isolate words and phrases from the 8 teachers' interviews which should be given special focus.
(2) Select words and phrases from outside the data that can be used as replacements for those isolated in step (1).
(3) Select words and phrases which explain those in step (1) and (2) in more detail.

(4) Isolate themes and constructs from step (1), (2) and (3), and combining the meanings found in the data, construct a storyline which weaves together those themes and constructs. From the storyline create a theory.

The data collected from the questionnaires and interviews were applied to the SCAT matrix, and storylines were constructed. Through these storylines, theories emerged and were used as a basis for discussion and conclusion of this research.

4. Results

4.1 Research Questions

In this study the following 8 research questions (RQ) are posed:

RQ1. Which part of CLIL is the most attractive to you as an educator?

RQ2. During the CLIL lesson, what did and didn't you struggle with?

RQ3. What were you conscious of while doing CLIL lesson?

RQ4. Which of the four C's do you want to emphasize most? (teachers were free to choose more than one)

RQ5. In the case of teachers who have a low level of English, what do you find troubling?

RQ6. Which field do you want to emphasize most, lesson content or language targets? (teachers were free to choose both)

RQ7. What kind of content do you want to teach in the future?

RQ8. What is your opinion of the effectiveness of CLIL and the problems students and teachers face with CLIL lessons?

This article focuses on RQ4, 6 and RQ7, while RQ1, 2, and 8 are analyzed qualitatively and discussed.

4.2 Quantitative Data Analysis

Select responses are considered in the data analysis. The National Institute of Technology teacher's answers are included in the analysis of RQ4 and 6. Also for these two questions, teachers had the option of choosing more than one answer. In RQ4, "Which of the four Cs do you want to emphasize most?", seven teachers answered "Cognition", two answered "Community/Culture" and two teachers answered "Communication" (Figure 1, Table 5). These teachers have recognized that thinking and deeper understanding are important in a CLIL lesson. It is interesting that all three elementary school teachers chose "Cognition", while the other teachers chose a variety of answers. However, none of the participants chose "Content". A reason for this may be that when planning the lesson, the CLIL framework allows for flexibility regarding content.

Table 5. RQ4 Response Data (Each teacher)

	Institution	Subject	Emphasize most from 4C
A	Elementary school	Homeroom teacher	Cognition
B	Elementary school	Homeroom teacher	Cognition
C	Elementary school	Homeroom teacher	Cognition
D	Junior high school	English	Cognition
E	Junior high school	English	Cognition, Community/Culture
F	Junior high school	P.E.	Communication,
G	High school	English	Cognition, Community/Culture
H	High school	English	Cognition
I	National Institute of Technology	English	Communication

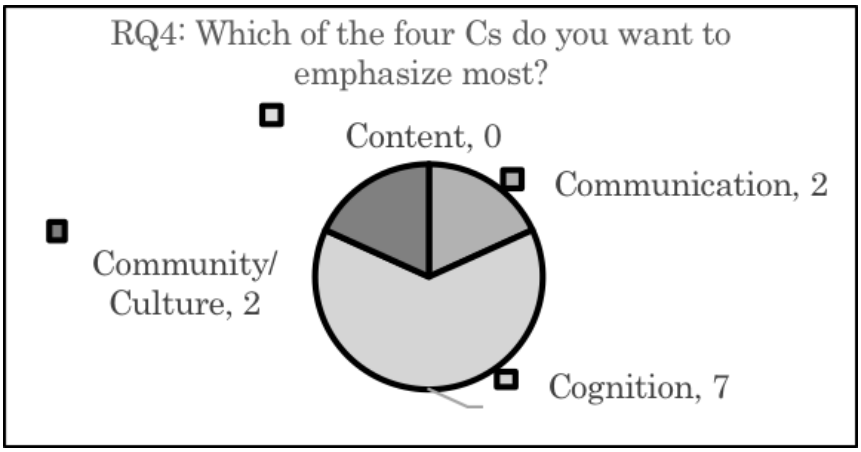

Figure 1. RQ4 Response Data

In RQ6, “Which field do you want to emphasize most, lesson content or language targets?”, eight teachers answered, “lesson content” and five teachers answered, “language target” (Figure 2, Table 6). Here a pattern can be seen that the higher the age of the students, the more the teacher emphasizes the target language. It is noteworthy that all five English teachers mention that “Target language” is important in CLIL lessons. In response to RQ7, “What kind of content do you want to teach in the future?”, most of the teachers mentioned ESD (Education for Sustainable Development) such as environmental problems or human rights issues (global issues). ESD might prove to be a more manageable CLIL lesson theme than other subject matter.

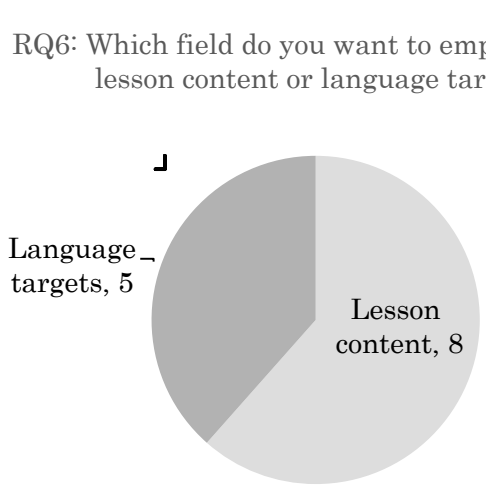

Figure 2. RQ6 Response Data

Table 6. RQ6 Response Data (Each teacher)

	Institution	Subject	Emphasize between Lesson content or Language target
A	Elementary school	Homeroom teacher	Lesson Content
B	Elementary school	Homeroom teacher	Lesson Content
C	Elementary school	Homeroom teacher	Lesson Content
D	Junior high school	English	Lesson Content, Language Target
E	Junior high school	English	Lesson Content, Language Target
F	Junior high school	P.E.	Lesson Content
G	High school	English	Lesson Content, Language Target
H	High school	English	Lesson Content, Language Target
I	National Institute of Technology	English	Language Target

4.3 SCAT Analysis

The following shows the SCAT storyline of the eight teachers. The storylines were constructed as described above using data collected through the teacher questionnaires and interviews. For RQ1 and 2, the answers of the interviews from the eight teachers are summarized in one storyline, and regarding RQ8, each of the eight teachers' storylines are shown, and a sample from the matrix of SCAT is shown as Table 7.

4.3.1 SCAT storyline of responses to RQ1: Which part of CLIL is the most attractive to you as an educator? (Responses from all 8 teachers are summarized in one storyline.)

While participating in the CLIL lesson, the teachers were aware of the student's motivation to learn; they had a personal, interactive learning attitude. Students were cheerful and active and had a variety of thoughts and ideas. In addition, all eight teachers believe that students can learn authentic and broad content by incorporating learning from other subjects with a desire for knowledge. The teachers are always thinking about the effects on and the support for students who are not good at English. All eight teachers feel that CLIL is positive and appealing.

4.3.2 SCAT storyline of responses to RQ2: During the CLIL lesson, what did, and didn't you struggle with? (Responses from all 8 teachers are summarized in one storyline.)

Because the teachers who ~~which~~ do not specialize in English education are not confident about the EFL developmental stages of children and student's English proficiency, they struggled with building lesson plans independently. In particular, the elementary school teachers and the P.E. teacher are not confident about their own English proficiency, assessment of mastery level, paraphrasing ability and dialogue skills in English. Teachers expressed a concern with working alone. Junior and high school English teachers struggled with creating lessons that satisfy intellectual curiosity. They believe that teachers should also play the role of facilitator, but they feel many teachers tend to go forward and instruct quickly. All eight teachers who already have tried CLIL did not have difficulty finding potential lesson content as there is an abundance of ideas. They also said that it is important to communicate with teachers of other subjects regularly.

4.3.3 SCAT storyline of responses to RQ8: What is your opinion of the effectiveness of CLIL and the problems students and teachers face with CLIL lessons? (Individual response storylines.)

> **Teacher A:** Compared to when foreign language activities began in elementary schools in Japan ten years ago, children had a more positive attitude. The teacher has come to think about other subjects from the viewpoint of CLIL. It seems that the framework of CLIL has been imported to other subjects.
>
> **Teacher B:** Children were listening carefully to what they will do in the lesson. They were listening as well as they do in other classes. My students were thinking "I must listen properly". I became able to plan classes constructively. I noticed that I did the same thing in other classes. I do not think there was any difference because I was doing CLIL. After all, the basics are the same in every class, a good learning attitude and communication with teachers of other subjects is very important.

Teacher C: Compared to other classes, children's attitude was different. They concentrated until the end of the class. By thinking while working, students were able to use their English expressions without a lot of previous practice, and it became possible to work ambitiously. As a teacher, it is easy to create an environment where using English is inevitable. Also, CLIL lesson plans are simple and easy to organize.

Teacher D: Since they learn through thinking, the students looked happier doing the CLIL lesson and it seemed like they had learned more than when just doing a simple activity. The teacher was able to show examples of ways to teach learning across different subjects in the future. CLIL is worthwhile.

Teacher E: Students' concentration increased when they were taught in English. When students were interested in the lesson content, they were less concerned with which language the instruction was in. Through CLIL, students were less resistant to English-only classes. English words are sometimes simpler and easier to use than Japanese.

Teacher F: The atmosphere of the lesson improved and became brighter, and the students became able to use English in a fun way. Students who are good at P.E. enjoyed the CLIL P.E. classes, while students who are not good at exercising also enjoyed the lesson. Usually the two groups do not get the same enjoyment out of a P.E. lesson, but the CLIL P.E. lesson was effective for both groups. It was very interesting. In the beginning, teaching classes in English seemed impossible, however as the students were observed to be learning, there was motivation to do more. Although teacher talk in English is not difficult if the teacher has prepared enough, it was difficult to answer in English when asked a question. A teacher who has the language ability to be able to respond flexibly would be successful in CLIL. Although a CLIL lesson by a P.E. teacher may seem impossible, it is found that the students respond well and make the lesson enjoyable for the teacher, resulting in a desire to try more. It is difficult to continue CLIL on a regular basis, as currently it is not a part of the curriculum.

Teacher G: Through the CLIL lessons, the students who were not good at English but were good in other subject areas showed a positive change in attitude, while the students who were good at English became interested in learning other subjects. In addition, students realized that it is difficult but fun to learn new things and communicate with others in English. It is thought that students' academic abilities have improved through the CLIL lessons. It was helpful to learn content and teaching method of other subjects. For teachers also, learning, knowledge and interest can be expanded through CLIL.

Teacher H: The response from students was beyond expectation and interesting. The number of questions asked by the students increased. It is important for teachers to act as a facilitator and support the students while they are learning for themselves and also while using English frequently. Students' thinking skills became activated.

Table 7. A sample from the matrix of SCAT

No	SC	Text	<1> focused words from within the text	<2>words outside of the text	<3> words explain the words in 1,2	<4>themes and constructs
		What is your opinion of the effectiveness of CLIL and the problems students and teachers face with CLIL lessons?				
		【Student's outcomes and issues】				
2	E	Children were listening carefully to what they will do today. They were listening as well as they do in other classes. My students were thinking "I must listen properly."	listening as well as in other classes	listen pay attention	listening attitude	Listen to someone carefully
12	J	Students who are good at physical education enjoy P.E. classes, but students who are not good at exercising also enjoyed the P.E. CLIL lesson. Usually the two groups do not get the same enjoyment out of a P.E. lesson, but I felt that the CLIL P.E. lesson was effective for both groups.	effective for both groups	Academic ability, memory, exercise	effective for everyone	utilize everyone's strengths
17	H	Response from students was beyond expectation and was interesting. The number of questions asked by the students increased.	The number of questions in the class has increased	motivation	learn more	energetic atmosphere
		【Teacher's outcomes and issues】				
19	E	I became able to plan classes constructively. I noticed that I did the same thing in other classes. I do not think there was any difference because I was doing CLIL.	planned classes constructively did the same thing in other classes	class management teaching plan	lesson plan	no difference from other lessons
24	J	Although Teacher Talk was not difficult if prepared enough, it was difficult for me to answer in English when asked a question I was not prepared for. I thought that a teacher who could respond flexibly in English would be successful.	type that can respond flexibly	flexible English proficiency	communication skills	flexibility
26	H	I could also learn the content and teaching method of other subjects. That was helpful. Learning, knowledge and interest expanded.	teaching methods. That was helpful.	Teaching methods of other subjects	learning, interests, knowledge	Learn from other subjects

Note: SC=types of school (E: Elementary school; J: Junior high school; H: High school)

4.3.4 Theories derived from SCAT storylines

From the storylines of these eight teachers, two main theories were derived. First, in the elementary schools, children were concentrating eagerly and listening to the CLIL lesson. The teachers could create effective classes in English. Second, in junior high school and high school, students' preferences for English became clearer. CLIL lessons were effective for those students who normally dislike English and are usually passive in regular English classes. In addition, students who like English became interested in other subjects. It is noteworthy that the high school teacher feels the students' academic abilities have improved. Across each of the schools, students' thinking skills were activated. From these teacher interviews, it can be said that CLIL lessons are worthwhile and effective.

4.3.5 Responses from the National Institute of Technology Teacher

The teacher of the National Institute of Technology studying CLIL was asked the same questions and the responses were compared to the answers of the eight interview subjects. His opinion is that CLIL is appealing because it is easy to stay aware of the CLIL targets (4Cs) and be goal-oriented when designing tasks and activities. Among the 4Cs, he

emphasizes communication as the most important. Regarding accuracy in English, grammatically correct English is important. As a guarantee of correct language usage, teachers should not waver from the prepared English in Teacher Talk. As for advice for teachers who are not good at English, it is beneficial to have confidence in speaking English. Asking the ALT to check Teacher Talk and the teaching materials beforehand is useful. He suggests that if teachers rehearse, simulating an English classroom as best they can, their confidence in teaching CLIL classes will grow.

5. Discussion and Conclusion

This study focuses on how CLIL teachers feel about CLIL. Looking at interview results of eight elementary, junior high, and high school teachers, the researchers investigated and analyzed problems and challenges that needed clarification.

In conclusion, the following five points are found. Firstly, there is a concern that teachers must plan and perform all lessons by themselves. A suggested solution to this concern is to co-operate with multiple faculty members. Secondly, the teachers at elementary schools and faculty who are not members of English departments are not confident about their English ability. Although their proficiency may be at a low level, it may be possible to teach CLIL confidently and effectively by practicing and rehearsing the English that is to be used in class. Though junior and high school English teachers did not raise the issue of confidence, their responses did not indicate that they were troubled about having to teach in English. Thirdly, it is important to communicate with teachers of other subjects. In CLIL there are many lessons which are done in tandem with other subjects. Therefore, teachers should meet regularly and discuss lesson content and students. The fourth concern is not limited to CLIL: although the basics are the same in every class, it is important to note that occasionally sudden changes in lesson plan take place. In student-centered classes, there are many cases where a class goes in a different direction than the teacher expected, but those should be embraced as learning opportunities. The teacher needs to cultivate optimum judgement according to individual situations. Fifth, teachers found that CLIL is effective for all students from elementary to high school. Students enjoy and learn according to their individual needs. Teachers are continuing to refine their teaching skills while facing many challenges. No one teaching method is correct, how each teaching method is used is important. While trying various methods, the desire of teachers who wish to improve their teaching and their lessons is vital.

Through these interviews, it was found that each teacher felt the positive effects of CLIL along with ~~and~~ working with various challenges. Elementary school teachers exceled at creating classes with interesting content. English teachers at junior and high schools felt ~~feel~~ the necessity of studying for other subjects. Teachers understood the necessity of having enough class time for other subjects. The P.E. teacher enjoyed the CLIL lesson, but feels that

there was not enough allotted class time under the current curriculum. There is still a possibility for CLIL at the secondary level if it were to be a recognized part of the curriculum.

When a teacher ideally suited for CLIL performs a CLIL lesson, it has a strong effect. However, becoming a good CLIL teacher who can provide effective lessons is not an easy aim. Not every CLIL teacher manages to be consistently effective, although it is desirable that all teachers who strive to be effective CLIL teachers can do so.

A limitation of this study is that teachers who have not experienced CLIL lessons were not interviewed. Therefore, it was difficult to explore and discuss their uneasiness and hesitations concerning CLIL. In addition, although our research includes English teachers and one P.E. teacher, we did not have the opportunity to interview teachers of other subjects at the junior and high school level. Further research is required on how to train teachers to become effective CLIL teachers, as young ambitious teachers should be supported and their skills as teachers should be developed and encouraged.

Acknowledgements

This work was supported by JSPS KAKENHI Grant Number JP17H07274. We would like to acknowledge and thank the teachers who gave of their time in order to take part in this study.

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Developing a Theory of Practice for CLIL with Pre-service Teachers

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Abstract
Five student-teachers at a Japanese university participated in a two-week teaching practicum in Thailand. The program was designed to assist them in developing their own theory of practice for CLIL. Student-teachers designed and conducted CLIL-inspired lessons which were compatible with the schools' foreign language learning goals and the 4Cs (Content, Communication, Cognition, Culture) of CLIL. The unique characteristic of this practice was the use of ePortfolios to grasp the type of CLIL practices that the student-teachers developed and a Lesson Study Application for smartphones and tablets to record observations and later see how those principles developed over the course of their practicum. All student-teachers developed principles related to *Content* and *Communication*. Furthermore, two of the five student-teachers articulated principles related to *Culture*. Principles for *Cognition* were not formulated to the same extent as the other components. This paper will articulate the student-teachers' theory of practice and describe how their principles developed.

Keywords: Teacher development, ePortfolios, teacher education for CLIL, lesson study application, English language education in Thailand

1. Introduction

Content and Language Integrated Learning (CLIL) ranges from a soft to hard version and all kinds of forms in between (Bentley, 2010). Considering that CLIL is conducted at all levels of education in a multitude of areas globally, there is a consensus that it will differ depending on the context (Sasajima, 2011). Practicing CLIL successfully is a combination of understanding the subject matter, the language necessary to learn and interact about the topic, the necessary learning processes, and the context in which one will teach. An effective CLIL teacher will synthesize these into contextually appropriate instruction. It is generally accepted that effective foreign language teaching is based on principles but is eclectic in nature (Brown, 2007). Teaching is an unpredictable endeavor whose success depends not on prescribed actions but rather on the practitioners making informed judgements (Moon, 2004). The purpose of this paper is to show the informed judgements that student-teacher practitioners from Japan made in conducting CLIL-inspired lessons at two high schools in

Bangkok, Thailand. It is hoped that this paper will shed some light on how novice teachers in English as a Foreign Language (EFL) contexts make sense of CLIL and ways in which teacher-educators can support teacher-learners in developing their own eclectic CLIL practice.

2. Linking CLIL with teacher development and the context of this study

The micro context of this study consisted of pre-service Japanese teachers doing CLIL-inspired lessons at a secondary school in Bangkok, Thailand. The macro areas related to this are teacher development and how to support it, English education in Thailand, and CLIL as it relates to the aforementioned areas.

2.1 Teacher development and its relevance to CLIL

Expertise in teaching is seen as the integration of formal and experiential knowledge and using it to envision the learning potential in instructional contexts and respond (Borg, 2006). In his seminal article on the nature of teacher expertise, Shulman (1987) wrote, "The goal of teacher education is not to indoctrinate or train teachers to behave in prescribed ways, but to educate teachers to reason soundly about their teaching as well as to perform skillfully" (p.13).

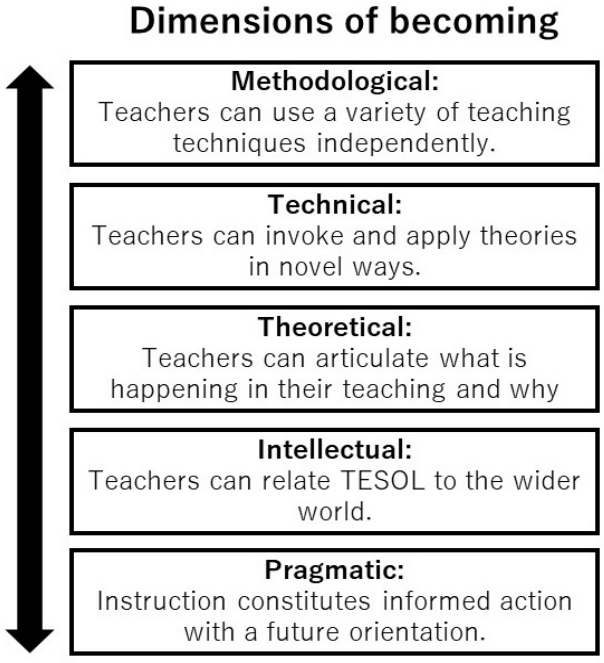

Figure 1. Edge's Dimensions of becoming

Edge's (2011) 'Dimensions of becoming', shown in Figure 1, can be used to describe the types of reasoning teachers can employ when engaging in informed action. The first and second dimensions from the top, *Methodological* and *Technical*, cover applying previously learned techniques and methodologies, respectively. The next dimension, *Theoretical*,

entails understanding what is happening in the class and why. *Intellectual* entails relating one's teaching to the wider world, and, lastly, *Pragmatic* means conducting instruction for the benefit of one's students or society. Edge did not create a diagram for these dimensions as we have, because, he argued, the world is not divided "into its constituent parts" (Edge, 2011, p. 12). Although teachers do not progress from one dimension to the next, he does allude that the *Intellectual* and *Pragmatic* dimensions are likely to occur later on in a teacher's professional life. Reasoning in which teachers think of the wider implications of their instruction is also known as critical reflection (Brookfield, 1995), and is usually exhibited by teachers with more experience (Farrell, 2015; Takahashi, 2011).

Content, *Communication*, *Cognition*, *Culture* or the '4Cs' represent the principles behind CLIL and, according to Mehisto et al. (2008), serve as a reference point for lesson planning. It is our position that discussing the 4Cs with student-teachers can offer opportunities for engaging in different modes of reasoning. For example, discussing techniques and methodologies for *Content* learning and *Communication* can be related to *Methodological* and *Technical* modes of reasoning. *Cognition* in CLIL offers teachers a way to organize and explain student learning and is thus related to the *Theoretical* dimension. Lastly, *Culture* is related to the *Intellectual* and *Pragmatic* forms of reasoning as it relates linking us (teachers, students, community) to the world. It should be noted that it is not our intention to argue that each C relates exclusively to one of Edge's dimensions. Coyle et al. (2010) argue that the 4Cs are not discrete elements, and thus it is likely that another person might interpret the correspondences in a different manner. However, we argue that, in principle, using the 4Cs as a lens for our teaching can facilitate the application of different modes of reasoning.

2.2 The Thai educational context and its relevance to CLIL

The Basic Education Core Curriculum of Thailand, which was enacted in 2008, stipulates common learning goals for all subjects. It advocates a learner-centered approach and seeks to develop the following key competencies: communication capacity, thinking capacity, problem-solving capacity, capacity for applying life skills, and capacity for technological application (Ministry of Education Thailand, 2008).

All subjects in Thailand are standards-based. Standards, according to Anderson (2014), are equivalent to objectives and describe the intended outcomes of the curriculum. The standards for English are divided into four strands, or general aims. Figure 2 shows the strands as well as the number of standards associated with each one. For each standard, there are benchmarks, which describe competencies that learners should be able to perform to exhibit proficiency in that standard. There are benchmarks given for each grade (1 – 12). The bottom of Figure 2 shows one of the standards for strand 1, *Language for Communication*, and two grade-8 benchmarks for it.

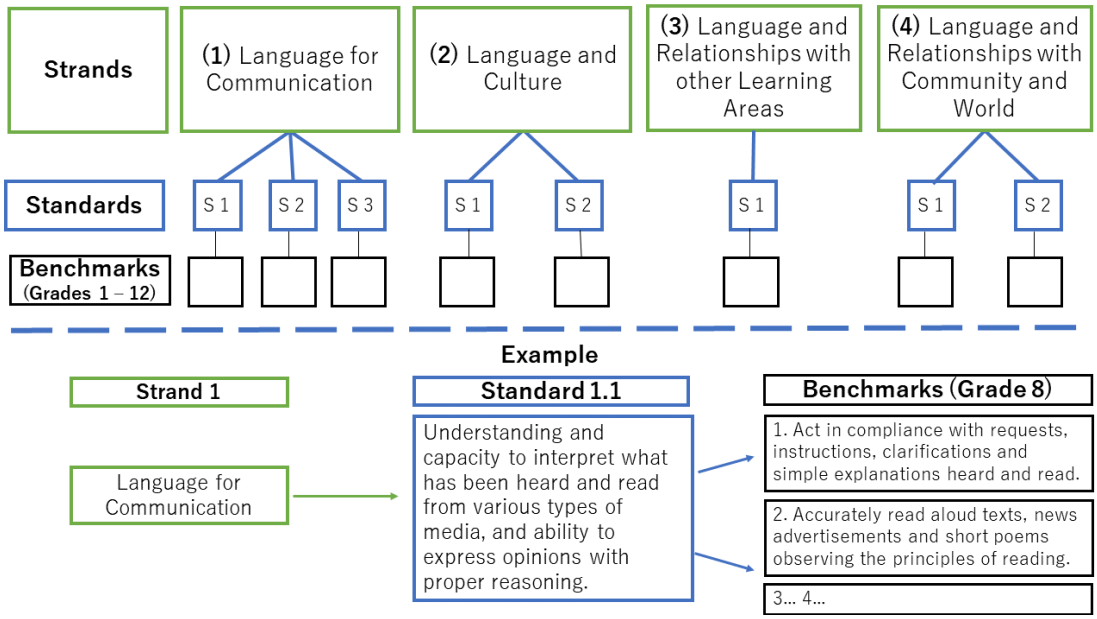

Figure 2. Strands in the Thai English language curriculum

The four strands of the Thai curriculum, in a similar style to CLIL, are labelled the 'Four Cs': *Communication*, *Culture*, *Connection*, and *Community*. It is possible to deduce similarities between the Thai curricular and CLIL 'Cs.' For example, CLIL *Content* and Thai *Connection*, CLIL *Culture* and Thai *Community* and *Culture*, and CLIL and Thai *Communication* have common points. The four strands from Thailand were based on the content language standards from the state of Louisiana from where some of the academics who drafted the curriculum had connections (Kulsiri, 2008). This means that the strands are a foreign concept to education in Thai education and might not be understood well. Schools in Thailand are expected to choose their own curricular content relevant to their local areas and use a communicative methodology. This has been problematic because school teachers are not familiar with communicative teaching methodologies or curriculum development (Kulsiri, 2008). Thus, teaching in Thailand is "predominantly teacher-centered and exam oriented" (Kaur et al., 2016, p. 354). It was hoped that relating the 4Cs of CLIL exhibited in the lessons to the four strands of the Thai English curriculum could deepen our understanding of both frameworks.

2.3 Experiences to trigger teacher development

Because teaching is an unpredictable endeavor, it is inevitable that student-teachers' CLIL-inspired lessons will not go according to plan. A critical incident (CI) is a term used to define an unanticipated event that occurs in the classroom or a routine event looked at in a new perspective (Tripp, 1994). Interpreting these events will challenge the practitioners' beliefs about teaching and learning. Thus, analyzing CIs can lead to new discoveries about teaching (Farrell, 2013). CIs have been used to help teachers make sense of CLIL; Coyle et al. (2010) have developed a technique where teachers choose CIs from video of their classes and share

it with others to discuss the practice of CLIL. While Farrell and Baecher (2017) use reflection on CIs as a means for teachers to make sense of what happens in the classroom.

A CI has similarities to the term 'puzzle' used in exploratory practice. Exploratory practice is a form of inquiry led by teachers and students about the teaching and learning process they are experiencing. The purpose of exploratory practice is to improve the teaching and learning experience by investigating a puzzle. A puzzle can be considered an area of concern or interest which warrants investigation (Allwright & Hanks, 2009). In this paper, we will reveal the puzzles experienced by the student-teachers in this program and how they resolved them in developing their own CLIL theory of practice. Understanding an issue and then modifying one's practice based on that understanding is part of the professional development process (Schön, 1983). The research questions we posed were:

1. What were the types of puzzles experienced by the student-teachers when conducting CLIL-inspired lessons?
2. How did the student-teachers resolve these puzzles to develop their own type of CLIL practice?

3. Method

The purpose of this action research was to help pre-service Japanese teachers develop their own theory of practice during a two-week teaching practicum in Thailand. We surmised that this process would include experiencing and attempting to resolve puzzles. In this section we introduce the internship, the participants, and the cooperating schools. We then discuss how we utilized a Lesson Study Application to encourage reflection and an ePortfolio to archive student-teacher development.

3.1 Internship, Participants and Schools

The teaching internship was called the Puean ('Friendship' in Thai) Program. Student-teachers conducted CLIL inspired lessons for English and Japanese classes at two secondary schools in Bangkok for a period of two weeks. Each school consisted of grades 7 to 12 and there were ten homerooms per grade. Homerooms could be assigned by major (e.g. Japanese, science, etc.) or academic level (e.g. gifted). The two schools were 10 minutes apart by foot, and the interns taught at both institutions. Before going to Thailand, each student-teacher chose a topic related to an aspect of Japanese culture and designed lesson plans for teaching about it to either lower school (grades 7 – 9) or upper school (grades 10 – 12) English and Japanese classes. Student-teachers conducted their lessons in pairs to a variety of homerooms in a variety of grades. Teaching the same lesson repeatedly reduced the cognitive load of having to master new content for the student-teachers and directed their focus on how to facilitate student learning.

The internship took place from January 4 - 13, 2018 with 5 participants. Their details are

shown in Table 1 (The names are pseudonyms.). All the participants were aspiring teachers, and Chika, Jasmine, and Shohei were participating in the program for the second time. In addition, all teachers had completed their required teaching practicum in Japan for their respective licenses. The student-teachers English proficiency ranged from A2 to B2 on the Common European Framework of Reference for Languages (CEFR) scale. Because of their previous teaching experiences, the student-teachers could prepare and conduct their lessons with a degree of autonomy regardless of whether their proficiency was on the higher or lower end of the CEFR scale. The two authors as well as the teachers from the practicum schools in Thailand served as supervisors and provided the student-teachers with feedback on a regular basis.

Table 1. Student-teachers in the Puean Program

Name	Major	Employment goal	Year	Teaching Topic
Chika	English	HS* English teacher	3	Town mascots in Japan
Kosuke	English	JHS* English teacher	4	Iwate trip planning
Jasmine	Education	ES* teacher	3	Japanese fable: Urashima Tarou
Miku	English	ES teacher	3	High school student stress
Shohei	English	HS English teacher	4	Personal distance in Japan

* HS = High school; JHS = Junior High School; ES = Elementary School

3.2 Lesson study process and the Lesson Study Application

Student-teachers reflected on their lessons and discussed puzzles through periodic lesson studies. A lesson study (LS) can be considered a form of collaborative inquiry in which teachers conduct and observe lessons and, based on their discussion, identify ways to facilitate student learning. LS is not intended to be a feedback session (Inagaki & Sato, 1996), rather it is a way to collaboratively make sense of teaching.

The LS process is shown in Figure 3. To facilitate this process, we designed a LS Application for smart phones and tablets. In the first step and before the teaching practicum, student-teachers designed a lesson compatible with CLIL, the school and national foreign language curriculum, and their own teaching philosophy. In the second step, student-teachers and observers thought of questions for observation. For example, in Kosuke's Iwate trip planning lesson, one question for observation concerned how students interacted about the content. In the third step, observers wrote their observations into the LS Application during lessons. That is, for a specific lesson, they could write text, take pictures, or take video digitally via smartphones and tablets and then categorize it under one of the points of observation. In step 4, the LS was conducted where the observers and teachers discussed the observations recorded on this application.

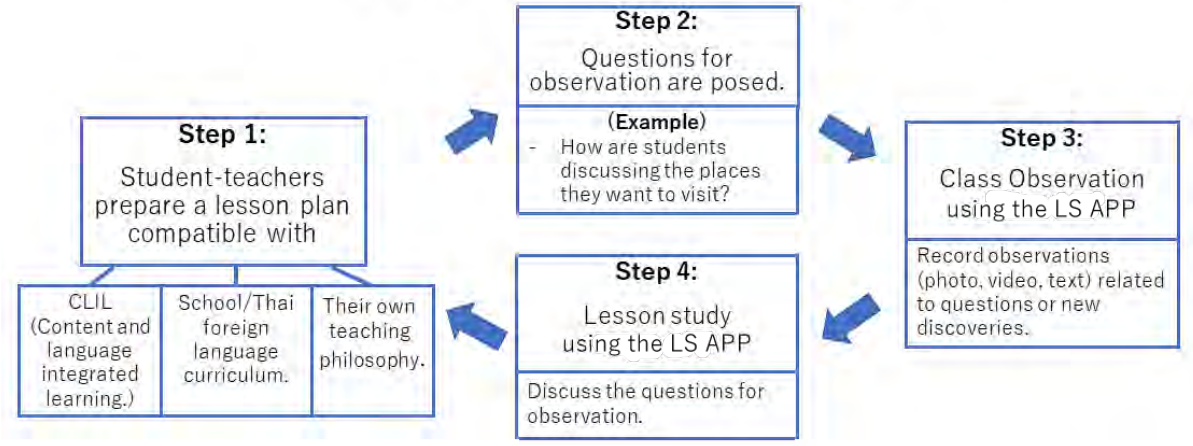

Figure 3. The lesson study process

3.3 ePortfolio for documenting student-teacher development

After the practicum, ePortfolios were employed as a means to document how student-teachers developed their theory of practice. Figure 4, below, shows the ePortfolio (EP) framework developed by Hall and Townsend (2017). On the first page 'Lesson and Teacher Change' the student-teachers wrote how their *Teaching*, *Beliefs about Language Learning*, and *World View* evolved. Below that, they provided their *Lesson Plan*. In the *Results of the Lesson*, they wrote what they learned from the LS discussions, and finally lesson artifacts were uploaded to *Teaching Materials*. On the second page, 'Evidence of Development,' student-teachers wrote the CIs which triggered the changes in their teaching, beliefs, and world view. We have found ePortfolios to be effective tools for enabling student-teachers to articulate their theory of practice and share it with others (Hall, 2018; Hall et al., 2016; Hall & Townsend, 2017).

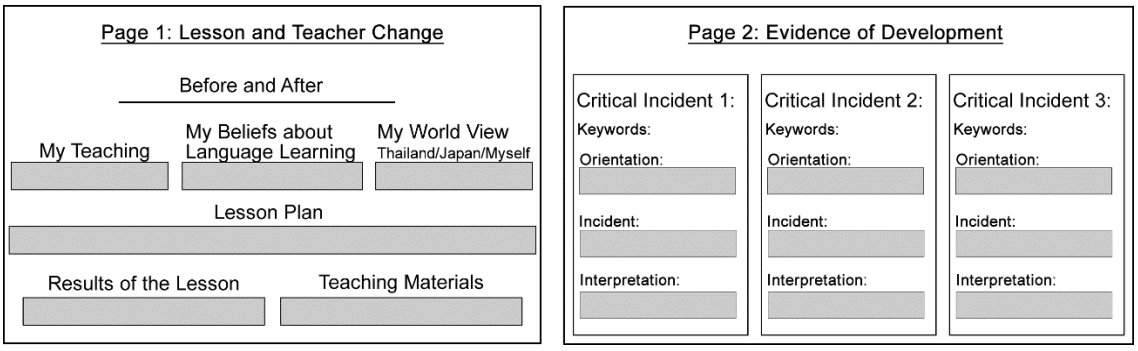

Figure 4. Framework of the ePortfolio

3.4 Data collection and analysis

The data consisted of class observation comments from the LS Application, student-teacher accounts of their development in the EP, and the teaching materials (lesson plan, worksheets, resources). First, we identified puzzles related to CLIL in the EPs. Second, we looked at

comments on each student-teacher's lesson in the lesson study app to find evidence on how these teachers were grappling with these issues. Based on these data and teaching materials, we constructed a narrative for each teacher to describe the puzzles they encountered doing CLIL, how they resolved them, and how their own practice developed. Lastly, by synthesizing the narratives of the five teachers, we endeavored to articulate a theory of practice collectively developed by the teachers.

4. Findings

As described above, student-teachers aimed to conduct a class which would incorporate their own teaching philosophy, the Thai national curriculum, and CLIL principles. The narrative for each student-teacher describes some background information on them and their lesson, reveals the benchmark from the Thai curriculum relevant to the lesson, describes the puzzle and its relevant CLIL component, and lastly describes how the teacher responded to the puzzle.

4.1 Chika: Learning to scaffold (Communication)

Chika was joining the Puean program for the second time. The year before, she had conducted a successful lesson about Japanese college student fashion. This year, Chika chose the topic of Japanese *Yurukyara*, which she termed "Heart-warming mascot-characters." In Japan, municipalities create mascots which they use to PR their products or areas of sightseeing. For example, the mascots of Miyako City in Iwate are a cartoon-like male and female salmon, S*almon-kun* and *Miyako-chan*, respectively.

Chika conducted this class for the upper school (Grades 10 - 12) and her aim was the following benchmark under the *Language for Communication* strand: "Explain and write sentences and texts related to various forms of non-text information" (Ministry of Education Thailand, 2008, p. 261). Chika's lesson consisted of the following components: First, she introduced the concept of *Yurukyara*. Then, students did a matching task, whereby they read passages about cities in Japan and matched that city to its respective mascot. The final stage of the lesson consisted of a jigsaw task. Students were put into groups of four or five, then each group received a picture of a mascot and they wrote what the mascot was supposed to symbolize. When they finished the writing, students made new groups, and each student presented their writing on the mascot. After the groups' presentations, Chika told them the actual descriptions of the mascots, and the groups voted on their favorite ones.

Chika's puzzle concerned how to scaffold students in the jigsaw activity and was related to the *Communication* component of CLIL. As shown in part A of Figure 5, Chika gave the students useful words and phrases for describing the characteristics of each mascot. However, Chika wrote that students did not use these phrases and students took a long time to start working. Part B in Figure 5 shows an observation from the LS Application given on January

9. In this case, a student had copied sentences from Chika's description of the Miyako City mascot, Salmon-kun, to describe a different mascot, *Melon-guma* (Melon Bear).

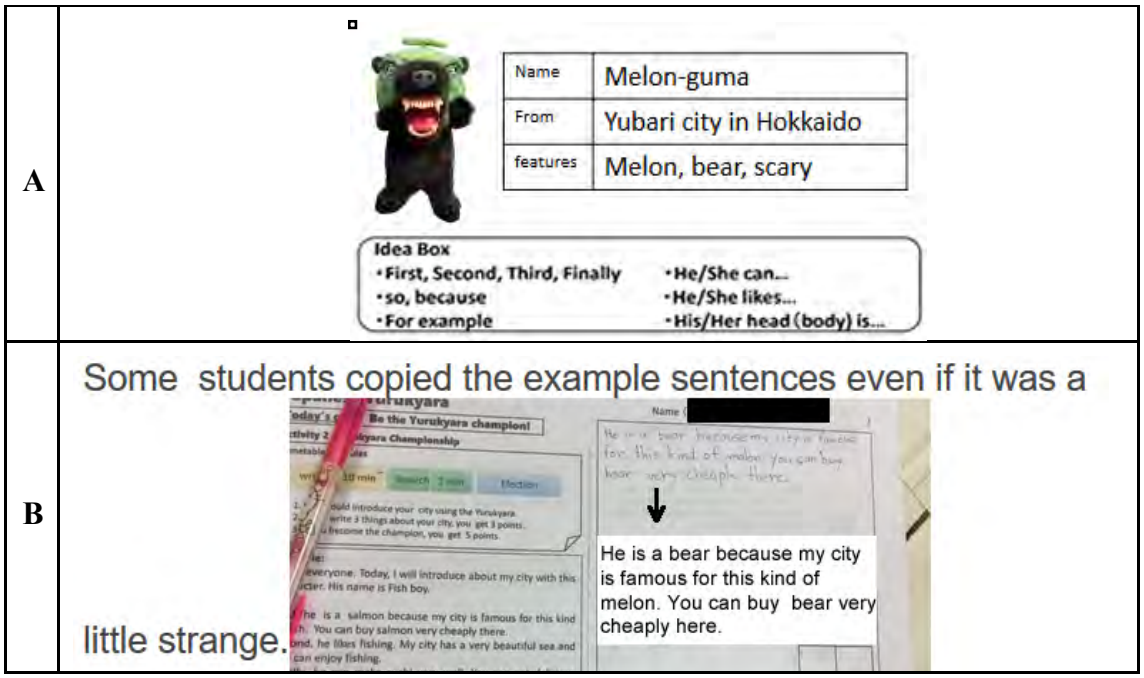

Figure 5. An observation that a student copied the wrong sentences for Melon Guma.

Based on the discussions she had in the LS, Chika decided to add a template in the handout to scaffold students' writing in the jigsaw task as well as provide writing prompts on the classroom whiteboard. Figure 6 is a combination of pictures taken from LS Application on January 12. It shows a mascot, the blackboard scaffolding, and a student's written work on the mascot. In her EP, Chika wrote, "I learned how to give students scaffoldings and how important to understand [the level of the] students" (*Critical Incident 3*). By the end of the practicum, most students in Chika's class could complete the jigsaw task, although the scaffolding made the task too easy for some students.

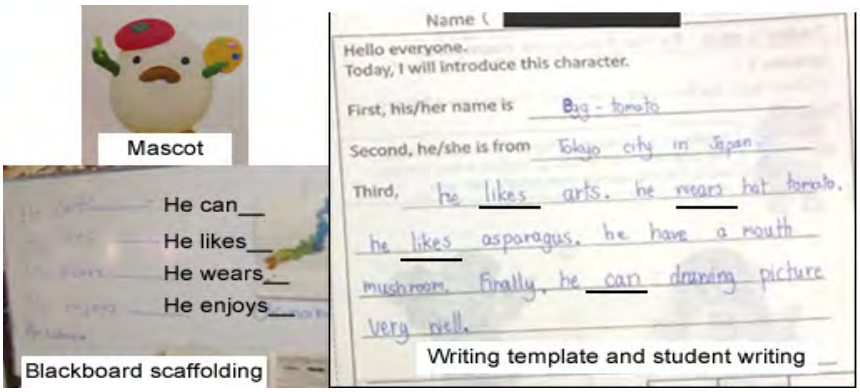

Figure 6. Chika's worksheet with a writing template (right) to provide scaffolding

4.2 Kosuke: Reasoning using authentic material (Content and Cognition)

In Kosuke's lesson, students had a sightseeing map of the prefecture of Iwate, located in Northern Japan. The map divided Iwate into four areas: Central, Northern, Southern, and Coastal and described the attractions in each area. Kosuke's aim was the following benchmark in the *Language for Communication Strand* (Grades 10 – 12): "Speak and write to describe their own feelings and opinions about various matters, activities, experiences and news/ incidents with proper reasoning" (Ministry of Education Thailand, 2008, p. 267).

Kosuke had two puzzles about how to utilize authentic materials and how to encourage proper reasoning. The first was related to the *Content*. After two days of teaching, Kosuke had figured out how to successfully incorporate the map. The following describes how he did this. First, using PowerPoint and mixing in some humor, he introduced Iwate and its four areas. He also compared Iwate to Bangkok. He gave the students enough background information so they could navigate sections of the map. He then handed out maps to pairs of students and gave them information-finding tasks. Next, students chose one place to visit and wrote the reason why they wanted to visit it. Lastly, they interviewed three friends asking: Which area do you want to visit? Which place do you want to visit? Why do you want to visit there?

In his EP, Kosuke wrote, "The new thing which I acquired in Thailand was the basic skill of how to use authentic materials" (*Before and After: My Teaching*). In the observation below from the LS Application (Figure 7), a school teacher wrote that students were participating in various activities making use of all four skills while utilizing the information on the map. This class became an example of how a teacher can create various small tasks around authentic material to help students understand the content and engage them in the class.

He had an interesting warm up. He can introduce his country before he recommended the interesting places in Iwate. He gave a new experience to the students. Everybody participated in this activity.The students can choose the places they would like to visit. After that, they can share their ideas to their friends. It's a good activity because they can practices multi skills such as listening, speaking, reading and writing.

Posted in AS School, Puean Overall Issues, About Class Objectives, Sightseeing in Iwate, Puean Program Classes

Figure 7. A teacher's comment on Kosuke's lesson on January 9, 2018

The second puzzle was not resolved and was related to *Cognition*; as a team we were unable to come up with a definitive conclusion to what constitutes 'proper reasoning' in the interview task. For example, in the LS Application a video of the following interview

between two students was posted as an observation for a grade 10 lesson. S1 was interviewing S2 while reading the questions from the screen (Extract 1).

Extract 1. Student in-class interview (January 11, 2018)
S1: Which area do you want to visit?
S2: The Southern area.
S1: Which place do you want to visit?
S2: The Kitakami River.
S1: Why do you want to visit there?
S2: Because it is beautiful.

The observer who posted the video wrote that "students' answers were very short; one word or short phrases, and no sentences." In fact, there was no evidence that students said anything more complex than the above interaction. In this lesson, through their participation, the students appeared happy to do the tasks that Kosuke set and the school teachers, through their comments on the LS Application, seemed satisfied with students' efforts. However, as a LS group, we were not able to conclude what might constitute proper reasoning nor did we devise a way to provide any kind of scaffolding to the students to help them give more elaborate reasons. For example, we could encourage students to answer with at least two reasons or encourage questioners like S1 to ask a follow-up question. Kosuke's case shows the effectiveness of authentic materials but also that sometimes we struggled to describe the type of cognitive skills we wanted students to exhibit.

4.3 Miku: How to get students to discuss their stress (Communication and Culture)
Miku's puzzle was about how to get students to discuss stress and was related to the *Communication* and *Culture* component of CLIL. Miku showed a well-known animated movie from Japan titled 'Kiki's Delivery Service.' In the movie, the main character, Kiki, is a young witch who loses her ability to fly because she is facing a lot of stress. Miku first introduced the topic of stress and discussed the major kinds of stress Japanese high school students experience. She then showed students a scene from the movie where Kiki tells her friend, Ursula, that she feels stress when she tries to fly and Ursula gives her advice on how to relieve her stress. Last, students wrote when they feel stress and what they do to 'refresh.'

Miku chose the following benchmark for Grade 9 under the *Language for Communication Strand*: "Speak and write to describe one's own feelings and opinions about various matters, activities, experiences and news/incidents, as well as provide justifications" (Ministry of Education Thailand, 2008, p. 267).

Observations on the LS Application indicated that the students were not understanding Miku's class at the beginning of the practicum; they did not understand what 'stress' meant

and could not discuss their source of stress nor how to resolve it. Miku made two discoveries that enabled students to understand the concept and participate in the class. The first discovery was the importance of teaching and practicing new language and was related to *Communication*. Extract 2 from Miku's EP shows that she learned to identify and then explicitly teach language that was essential for students to understand and discuss the topic.

> **Extract 2.** Miku's EP, Before and After: Changes in my Beliefs
> The biggest change of my beliefs is that I understood the importance of teaching vocabulary words. Before I went to Thailand, I thought the words are learned through reading sentences. If the learner saw a word they didn't know, they would guess its meaning from the context, I supposed. However, it was very difficult for the beginners like junior high school and high school students to do it. In my lessons, they didn't understand the meanings of "stress" and "refresh." These were key words of the lesson, so students couldn't continue to do the activities.

Secondly, Miku discovered the importance of building rapport with students through interaction. This is related to the communal aspect of *Culture* in CLIL; Miku realized it was essential to break down the barrier between her and the students. When Miku began teaching, she was focused on using PowerPoint and delivering her presentation about the content. Figure 8 shows a class observation given on January 8 and posted in the LS Application. The observation indicates that Miku was beginning to make use of PowerPoint to practice topic-related language. Students were enthusiastically engaged in the language practice, and they were learning language that they could use later on in the lesson. On the other hand, the observer notes that Miku was unintentionally keeping a physical and social distance from the students and gives her a suggestion on how she can generate discussion about her topic during the practice.

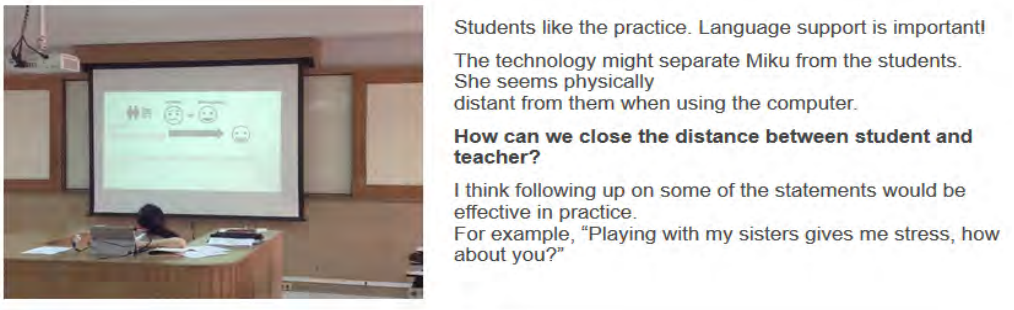

Figure 8. Observation of Miku's Grade 11 lesson on January 8, 2018

In her EP, Miku described a CI in which she realized how interacting with students could help her build a relationship with them that would foster their learning (Extract 3).

> **Extract 3.** Miku's EP, *Critical Incident 3*

Here is one of the scenes of my lesson. (T is teacher is me, S is a student.)
T: Repeat after me, “I feel stress when I study English.”
S: I feel stress when I study English.
T: How many people don’t like studying English?
S: Yeeeees!
T: You all don’t like studying English? You feel stress?
S: Yeeeees! Ha ha!

I could understand that “talk to students” was very good way to teach new words and phrases through this experience. When I used PowerPoint, I focused on operating my computer. However, I could see the students’ facial expressions and check their reactions when I use the whiteboard. After my lesson, my partner told me that it was a good lesson because students completely remembered the key words. I found the students could remember the words in the relationship with the teacher.

As a result of the aforementioned feedback she received and her own experience, Miku began to engage in more interaction with the students to enhance her lessons in the latter half of the practicum.

4.4 Jasmine: Discussing the message of Urashima Tarou (Content and Cognition)
Jasmine’s puzzle was about getting students to discuss the message of Urashima Tarou, a Japanese fable and involved both Content and Cognition. Urashima Tarou is the story of a boy living on the seaside who is invited to an under-water kingdom by a turtle. He spends three days there and when he returns to his village, he is given a box by a Princess who tells him not to open it. When he arrives at the village, he is shocked to learn that 700 years have passed. He returns to the beach and then remembers the box he was told not to open. When he opens it, he becomes an old man.

Jasmine began the class by confirming what a fable is. Then, she read the story and the students filled in the blanks on a worksheet. She stopped at the part where Urashima Tarou receives the box from the princess and asked the students to predict what would happen next. Students wrote down their idea and presented it to a partner. Lastly, she read the remainder of the story and asked students to tell her what the main message of the story was. Jasmine’s interpretation of the story’s message was that one should never break a promise. The aim of the class was based on the following benchmark for Grade 8 in the Language for communication strand: “Express opinions about what has been heard and read, as well as provide justifications and simple examples for illustration” (Ministry of Education Thailand, 2008, p. 261).

In our first LS on January 4, participants discussed two underlying issues concerning

Jasmine's puzzle: how to get students to discuss the message of the story. The first issue was that students were having difficulty understanding the story. The second was that even when students understood the story, it was hard for them to communicate its message. Concerning the first issue, Jasmine modified the way she used pictures, simplified the story, and learned to predict and pre-teach words that students would not understand. On January 8, a school teacher wrote in the LS Application that students seemed to be grasping the story. This was related to how to relay the Content to the students. Overall, observations indicated that Jasmine was able to modify her storytelling to help students understand the fable. On January 12, on the last day of the practicum, an observer posted a video on the LS Application that showed students energetically participating in the class.

In order to help students infer the message of the story, which was related to Cognition, Jasmine began to give students in the lower school a multiple choice question in which they selected the main message of the story. However, she continued to use an open-ended question with students in the upper-school. Throughout the practicum, we never observed the students writing more than a simple sentence as to what the message of the story might be, nor did we find any evidence of any kind of interaction between the teacher and students about the message of the story. In other words, there were no recorded instances in either the LS Application or the EP that indicated that the teacher and students had shared and compared their interpretation of the story's message with one another. Therefore, the puzzle of how to facilitate discussion on the message of the story remained until the end of the practicum.

4.5 Shohei: Lecturing about intercultural communication (Content and Culture)

Shohei's topic was the role of personal space in communication among Thai and Japanese. This was his second year doing the program and his primary puzzle initially was about how to deliver complicated cultural content to high school students in an engaging way. He wrote in his EP (Shown in Extract 4) that he was over-reliant on his computer.

> **Extract 4.** Shohei's EP, Before and After: My Teaching
> So, in this program, I tried to make my class with no computer. I wanted to find a possibility of my teaching skills. For instance, talking, gesture and eye contact that sort of things.

He gave the students 6 statements to describe how the Japanese use personal space in communication, examples of two (Culture Crossing, 2017) are shown below.

1. The Japanese prefer standing at arms lengths from one another. 75cm to 90cm is normal. When meeting strangers this distance is farther.
2. In public places like the subway, a market, etc. personal space can be limited and pushing up against one another is quite common.

In his lesson, Shohei introduced the 6 statements and discussed with students whether they were true or false. After that, he asked students to write about what differences and similarities they noticed between Japan and Thailand concerning the use of space. Shohei's benchmark was adapted from Strand 2, Language and culture (Grades 10-12): "Analyze/discuss similarities and differences between the lifestyles, beliefs and culture of native speakers and those of Thais, and apply them appropriately." Unfortunately, while Shohei was comparing Japanese and Thai culture, this strand refers explicitly to comparing the Thai culture with that of native speakers.

At the beginning of the practicum, observations in the LS Application of Shohei's class indicated that students did not understand the six statements. Shohei initially read through the statements without confirming whether or not the students understood them. By January 9, he became much more interactive, acting out the statements himself or with other teachers, asking students question, and explaining difficult words or concepts. This is indicated by the observation below (See Figure 9).

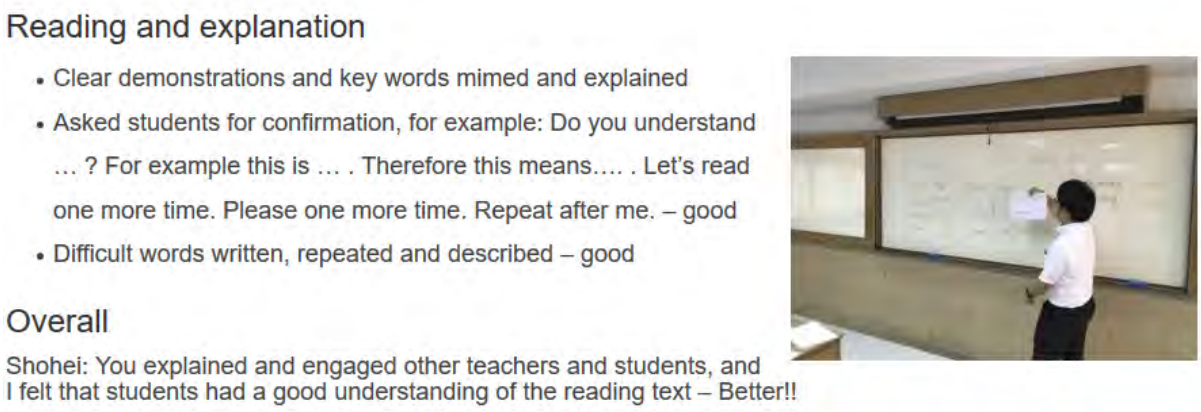

Figure 9. Comments on Shohei's Grade 11 lesson on January 9, 2018.

On January 12, one of the authors observed Yoshi conducting a grade 10 class with lively discussion. Shohei wrote about the dramatic change in his teaching between the first and second week of the practicum (Extract 5).

> **Extract 5.** Shohei's ePortfolio, *Critical Incident 3*
> When I started my class in Thailand, I taught alone. Now come to think of it, my class was poor. From the 2nd week (Monday) I asked for help to members of this program in my class. For example, demonstrate and act the sentences with me to give students a real feeling. It was very effective. Not only demonstrating, but mingling helped me very much. I felt that the teacher's advice during activity help student to keep motivation, and make a chance to think of new viewpoints. I think this program

is a very good opportunity to realize the importance of mingling. I want to say thank you for all help to my friends and teachers.

By the end of the practicum Shohei had learned to interact with the students about the content and thus was able to make the material more engaging. This is related not only to delivering *Content* but also *Culture* in that he was creating a learning community in the classroom by engaging students in the material. Shohei also gave an insight about *Culture* in his EP that was unique among the participants: he discussed the importance of recognizing similarities between Thailand and Japan, not just differences in Extract 6.

> **Extract 6.** Shohei's ePortfolio, *Before and After: My World View*
> There were many things that I noticed for the first time by examining Thailand and comparing it with Japan. [Omitted.] This is because the subject I dealt with this time was related to the character of peoples in each other's country. I noticed that we tend to look at differences when trying to compare things, but there are as many similarities as there are differences. I think it is not limited to Thailand. I thought that comparing each other and looking for common things might be one entrance in cross-cultural understanding.

5. Discussion: CLIL practice and teacher development

In this section, we discuss the types of puzzles teachers encountered, the theory of practice they developed, and the teacher's own development. We then discuss the implications that these might have on teachers learning to practice CLIL. Lastly, we discuss some implications the narratives have on interpreting the English curriculum of Thailand.

Many of the puzzles were concerned with matters related to *Content* and *Communication*. Considering that content and language, which is part of *Communication*, is the foundation of CLIL, it is logical to assume that these would be the matters of immediate interest which student-teachers would resolve quickly. The narratives of the five teachers show that they all made progress in these components in that they learned to identify essential language students would need to know to understand and talk about a topic. Furthermore, they learned how to present content in an engaging way mixing interaction into their presentations.

The student-teachers succeeded in getting learners to understand and communicate about the content in varying degrees. However, improving the quality of communication by describing and attempting to encourage higher levels of cognitive thinking, for example applying, analyzing, evaluating, or creating in Bloom's Revised Taxonomy (Anderson, 2014), was elusive to us. The *Cognitive* component of CLIL provides the educator with a framework for devising deeper forms of learning, but the ability to grasp and apply such concepts is likely developed over time.

Culture was exhibited in how the student-teachers attempted to create a temporary and collaborative learning community with the learners in the classroom. Furthermore, Shohei's experience indicated that student-teachers and students, in some cases, were able to appreciate one another's similarities as well as differences. *Culture* is described by Coyle et al. (2010, p. 54) as "the forgotten C" and a "thread that weaves its way through any topic." Its ubiquity and somewhat abstract nature made it more challenging to identify and articulate than the other three Cs.

In terms of the student-teachers' development, the narratives show that they demonstrated *Methodological*, *Technical*, and *Theoretical* reasoning (Edge, 2011). Student-teachers applying various techniques to help students understand the content and theories, such as scaffolding to facilitate student language use, is related to *Methodological and Technical* reasoning. In terms of *Theoretical* reasoning, student-teachers demonstrated it when they articulated how they handled *Content* or facilitated *Communication* in their lesson studies and EPs.

It is arguable that *Cognition* and *Culture* require deeper levels of thinking evident in *Theoretical, Intellectual* and *Pragmatic* reasoning, which takes time to develop. It has already been discussed that *Cognition* was beyond our capacity to fully address in our limited time in Thailand. Something similar can also be said about the *Culture*. For example, 11 days was likely not sufficient time to be able to grasp how class content might be relevant to and benefit the learners. This higher-level reasoning is likely more feasible when the teachers have been working with the students for an extended time.

Lastly, we will discuss the implications the narratives show about interpreting the benchmarks for the Thai national curriculum. The student-teachers were able to conceive of ways to accomplish the benchmarks for the *Language for Communication* strand. However, our experience indicates that such expressions as 'express with proper reasoning' and 'provide justifications' used in the benchmarks might be difficult to define and actualize in the classroom. However, it is possible that the *Cognitive* perspective of CLIL can help the Japan-based and Thailand-based members of this project collaborate on a definition. Another issue we experienced was with the *Culture* strand of the Thai National Curriculum which refers to understanding the 'culture of native speakers.' This does not seem compatible with the basic premise of English as a global language.

6. Conclusion

We have given five narratives about the puzzles pre-service teachers experienced doing CLIL-inspired classes appropriate to their teaching practice contents and how they developed their own theory of practice. The narratives indicated that the pre-service teachers'

theory of practice evolved first around *Content* and *Communication*. Two of the interns seemed to incorporate *Culture* into their practice but, as a LS group, we were not able to use *Cognition* as a framework for enhancing the quality of student communication. We surmise that *Cognition* and *Culture* likely require a higher level of reasoning which is acquired over time. We also identified ambiguous areas in the Thai national curriculum and how CLIL can be used to make them more concrete as well as how the *Culture* strand of the national curriculum is inconsistent with *Culture* in CLIL. It is our hope that we have also shown how the process of identifying and analyzing puzzles that teachers face can improve our understanding of how CLIL can be practiced in a given context.

This paper has sought to describe how pre-service teachers generate their own theory of practice of CLIL and how this process can be facilitated. The setting of this study, Japanese pre-service teachers undergoing an English practicum as a secondary school in Thailand, features a number of unique characteristics. Although the findings might not be generalizable, it is our hope that the process that was followed can be replicated by other educators to examine teacher development and discern an appropriate form of CLIL for their respective contexts.

Acknowledgements

This work was supported by JSPS Grant-in-Aid for Scientific Research (KAKENHI) (B), (No. 17H02676). The authors would like to thank the teachers and administrators at the schools in Bangkok for their collaboration, collegiality, and continuing support of our program.

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