CLIL Teachers Training Needs:
Myanmar Upper Secondary School Biology Teachers' Voices
ความต้องการในการอบรมการจัดการเรียนการสอนตามแนวคิด
การจัดการเรียนรู้บูรณาการเนื้อหาและภาษา: มุมมองของครูผู้สอน
วิชาชีววิทยาในระดับมัธยมศึกษาตอนปลายในเมียนมาร์

แซนดาร์ เทย์[1] และ สุธิดา โง่นคำ[2]

Sandar Htay[1] and Sutida Ngonkum[2]

[1]สาขาวิชาภาษาศาสตร์

[1]Department of Linguistics

[1]มหาวิทยาลัยภาษาต่างประเทศย่างกุ้ง

[1]Yangon University of Foreign Languages

[2] หลักสูตรภาษาศาสตร์ประยุกต์

[2] Applied Linguistics Program

[2] มหาวิทยาลัยขอนแก่น

[2]Khon Kaen University

บทคัดย่อ

  การวิจัยเชิงคุณภาพนี้มีวัตถุประสงค์เพื่อศึกษาความต้องการในการอบรม
การจัดการเรียนการสอนตามแนวคิดการจัดการเรียนรู้บูรณาการเนื้อหาและภาษา
ของครูผู้สอนวิชาชีววิทยาในระดับมัธยมศึกษาตอนปลายในเมียนมาร์ โดยใช้วิธีการ
สัมภาษณ์เชิงคุณภาพแบบกึ่งโครงสร้างทางช่องทางออนไลน์กับครูผู้สอนวิชาชีววิทยา
ในระดับมัธยมศึกษาตอนปลายจำนวน 4 คน โดยประเด็นในการสัมภาษณ์คือ
1) ลักษณะการสอนในปัจจุบัน 2) ปัญหาที่พบในการสอน และ 3) ความต้องการในการ
อบรมการจัดการเรียนการสอนตามแนวคิดการจัดการเรียนรู้บูรณาการเนื้อหาและภาษา

ผลการวิจัยพบว่า ในภาพรวมครูผู้สอนจัดการสอนเพื่อมุ่งเน้นการจัดจำเนื้อหา โดยครู
ผู้สอนได้ระบุว่า วิธีการสอน ความรู้ในเนื้อหาที่สอน การใช้ภาษาอังกฤษในการสื่อสาร
ทักษะการคิด กิจกรรมการเรียน การวัดผล และการบริหารการเรียนรู้ในห้องเรียน
เป็นปัญหาหลักที่พบในการสอน ส่วนในประเด็นความต้องการในการอบรมการจัดการ
เรียนการสอนตามแนวคิดการจัดการเรียนรู้บูรณาการเนื้อหาและภาษานั้นพบว่าครู
ผู้สอนต้องการอบรมเพื่อพัฒนา 1) ทักษะและความรู้ในการจัดการเรียนการสอน
ตามแนวคิดการจัดการเรียนรู้บูรณาการเนื้อหาและภาษา 2) ความรู้ทางภาษาที่จำเป็น
ในการเข้าถึงความรู้และเนื้อหาที่สอน 3) ความรู้และทักษะทางภาษาโดยรวม และ
4) ความรู้ในการจัดกิจกรรมการเรียนที่สนับสนุนการเรียนรู้ของผู้เรียน

คำสำคัญ: จัดการเรียนรู้บูรณาการเนื้อหาและภาษา (CLIL), การศึกษาความต้องการ
(NA), การฝึกอบรมครู, ครูผู้สอนในระดับมัธยมศึกษาตอนปลายในเมียนมาร์

Abstract

This qualitative study investigated the needs of school teachers teaching biology subjects at the upper-secondary level in Myanmar for the CLIL teacher training. Semi-structured interview was conducted through the online interview asking four upper secondary biology teachers about their 1) current teaching practices, 2) problems in the current teaching, and 3) needs in CLIL teacher training. Findings revealed that in terms of their current teaching practices, most teachers used the teaching methods that facilitate students' knowledge gaining. In revealing teachers' problems, data indicated that they encountered difficulties in areas of teaching methodology, content knowledge, English language for communication, thinking skills, learning activities, assessment, and classroom management. In terms of teachers' needs, the four teachers wanted the training course to develop their 1) skills and knowledge in CLIL teaching, 2) linguistic knowledge necessary for their teaching content, 3) overall language knowledge and skills, and 4) knowledge of how to manage activities to help their students learn successfully.

Keywords: Content and Language Integrated Learning (CLIL), Needs Analysis (NA), teacher training, upper secondary school teachers in Myanmar

Introduction

In Myanmar, the current content classroom teaching and learning has recently been designed not only to enhance students' content knowledge but also to improve critical thinking and synthesising skills which are important for the 21st century students. Consequently, content teachers are encouraged to use regional and global textbooks, particularly English ones, as their primary teaching resources to facilitate these learning goals. This is due to the assumption that English-written textbooks could give advanced and up-to-date knowledge (MoE, 2004). Teachers, especially in scientific disciplines, employ English-written science textbooks as classroom teaching materials in delivering content knowledge to students at the international level (Myint, 1992). It is typical for students in Myanmar, especially those in upper secondary school, to study science from textbooks published in English.

The classroom using English-based textbooks brings the English language as a medium of classroom instruction. Unfortunately, it is not happening in Myanmar's science classes. This is due to the fact that the majority of the teachers use grammar translation teaching method in transferring scientific content knowledge to the students and a teacher-centred approach which results in relatively little interaction between students and teachers and a passive learning environment (Weil, 2013).

In a grammar translation science class, a teacher often instructs students in a grammar translation science subject using the Myanmar language. In fact, only approximately 50% of the instruction is done in English (Soe, Ko & Myint, 2020). Delivering the content in the Myanmar language prevents students from understanding English written content which in turn prevents them from producing their thoughts in English. Unsurprisingly, students in most science classes show no sign of English skills improvement and pay attention to reciting

the text that their teachers have translated it from English to the intended Myanmar version. This leads to their rare opportunity to learn the English language of both grammar knowledge and communication skills.

In addition, teachers' insufficient classroom management skills in the English language also hinder students from learning effectively (Ulla, 2017). Many scholars concur that not all teachers are proficient in using English to conduct their English-medium instruction classes (EffECT Handbook, 2014). This is particularly the case in the Myanmar content classroom, where many teachers often lack the methodological background necessary to plan and teach content classes in English (Ulla, 2017; Soe et al., 2020).

This problematic situation prompts some thoughts about finding a more effective teaching method that supports content subject teaching and learning as well as appropriate teacher training that could utmostly enhance teachers' ability to run their English medium instruction class successfully. Recently, one of the teaching methods, Content and Language Integrated Learning (CLIL), has been suggested as perhaps being relevant in content classes using foreign-language written textbooks (Marsh, 2000; Dafouz et al., 2007 & Coyle, 2007). According to Marsh (2000) and Coyle (2007), CLIL is a dual-focused educational approach in which a foreign language is employed for both language learning and teaching, with an emphasis on the target language in the content text along with content understanding. In particular, CLIL can provide content teachers and students with greater opportunities to study the target language (Dafouz et al., 2007).

CLIL has been widely used as a teaching approach as it helps students develop their content knowledge, communication skills, and a second or foreign language knowledge and skills (Coyle,2007; Khalyapina (2020)). According to the European Commission, CLIL has been currently defined as a method of

teaching curricular subjects that also gives students chances to learn a language while engaging in content lessons (Dale & Tanner, 2012).

CLIL's complex working system in a classroom could be explained through the *4Cs* components of content, communication, cognition, and culture (Coyle, 2007, 2010). By implementing CLIL in a classroom, the *4Cs* components are interrelated in the way in which CLIL can facilitate the students to achieve their learning objectives. The first *C* is Content that focuses on developing new knowledge and skills related to understanding the subject matter (Coyle et al., 2010). The second *C* is for Communication, which describes how students convey their thoughts and different perception towards the content in the target language. Students could learn languages to use and use languages to learn in real situations through conversation (Coyle, 2007). Culture is the third *C* standing for the growth of global citizenship and intercultural competence (Coyle, 2010). Students are encouraged to respect and accept others and to see themselves as a part of a broader social group. The final *C* is Cognition which refers to the critical thinking abilities that students employ when engaging with and comprehending content knowledge.

Scholars like Suwannoppharatand Chinokul (2015) advised that to manage the CLIL classroom effectively, a teacher requires proper training because different teacher has different abilities in managing a CLIL class. That is to say, language teachers may need to learn more about the subject matter, while content teachers most likely need to learn more about the language that will be used in their classrooms to teach the content subjects (Lesca, 2012).

In Myanmar current classroom context, all the teachers responsible for the science subjects in the CLIL classes are presently teaching the content through textbooks printed in English. Attending CLIL teachers' training courses

will definitely help them become proficient teachers who are competent in both teaching management, language knowledge and skills (Pérez Cañado, 2018). However, no specific training has been provided in Myanmar to equip teachers with the necessary skills and knowledge for teaching content through a second language. This lack of training could lead to ineffective classroom instruction, limited student engagement, and poor academic performance. Therefore, it is imperative to provide CLIL teacher training in Myanmar to ensure that teachers are equipped with the pedagogical and language skills necessary to teach English written content effectively. In encouraging CLIL teacher training in the Myanmar context, Ulla (2017) postulated that CLIL teacher training should be established so that teachers become competent in the content knowledge they teach, are able to use English as the medium of classroom instruction, are able to design teaching materials and activities, and build up their professional teaching qualities.

In designing an effective CLIL training course, it is necessary to make sure that teachers are provided with knowledge and skills they need. The wants and lacks of the teachers will be used as the fundamental information in a course design (Hyland et al., 2016). It is important to investigate the needs of the teachers, particularly, in the aspects of 1) their current teaching practices, 2) problems they encounter, and 3) their needs for CLIL teacher training. The useful and relevant data gathered from the needs analysis could be used as fundamentals for adequate course design (Johns, 1991). Through needs analysis, this study describes feasible components of teacher-training course that can enhance knowledge and skills of science subjects teachers in Myanmar.

Needs Analysis

Needs analysis (NA) is the analysis of information collection that can reflect the course objectives to meet the language learning requirements of students in a particular context (Brown, 2016). Needs analysis is done to identify not only the "necessities," "lacks," and "wants" of learners toward the targeted situation (target needs), but also the "learning needs" or what learners have to accomplish in order to achieve (Brown, 2016, p. 13). Therefore, needs analysis is an important first step in developing a curriculum or course for specific group of learners. The useful and relevant data gathered from the needs analysis are used as fundamentals for adequate course design (Johns, 1991).

Needs analysis is an essential component of language teaching and learning as it allows the identification of areas where learners and teachers require support to improve their language proficiency and pedagogical practices. Conducting a needs analysis can provide valuable insights into the challenges faced by teachers and students, and help design effective training programs that are tailored to their specific needs. The literature on needs analysis suggests that this approach can improve teacher training outcomes, leading to increased confidence and improved classroom practices (Pérez Cañado, 2014).

There are different approaches to needs analysis. For example, West (1994) suggested nine important ones which include Target-situation analysis, Deficiency analysis, Present situation analysis, Learning-oriented, Strategy analysis, Means analysis, Language audit, Set menu analysis, and Computer-based analysis. Of such a variety of needs analysis approaches, a single Needs analysis technique cannot provide a comprehensive overview that will best support the design and development of a course or program. As a result, Evans and John (1998) developed an Needs Analysis Model that

integrates multiple approaches. The model includes crucial elements provided in numerous successful ways. This is as follows (Figure 1):
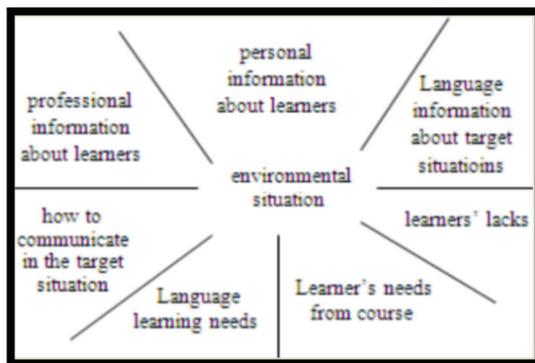

Figure 1: Needs Analysis Model proposed by Dudley-Evans and St. John (1998)

This qualitative study employed Needs Analysis Model proposed by Dudley-Evans and St. John (1998) to investigate the needs of school teachers teaching biology subjects at the upper-secondary level in Myanmar for the CLIL teacher training. It is expected that the results from needs analysis would provide important information that is useful for the CLIL teacher training in Myanmar upper secondary school context. So, by conducting a needs analysis, the study aims to provide valuable insights into the challenges faced by teachers in delivering content knowledge in a foreign language and develop targeted training programs that can support their professional development.

Objectives

1. to explore the current teaching practices of the biology teachers at upper secondary school in Myanmar

2. to investigate the problems that the teachers encounter when teaching biology in English

3. to identify the skills or knowledge the teachers need most for teacher training

Methodology
Participants

In this study, convenience sampling was used to select participants. Four female teachers teaching biology at Grade 10 using English-written textbooks at an upper secondary level in Myanmar voluntarily agreed to participate in the study. Convenience sampling was employed because, given the time and resource restrictions, it was the most feasible and practical method of selecting participants. The majority of teachers in Myanmar are female, and their perspectives on the application of CLIL are important for comprehending the current situation. As a result, the researchers specifically targeted female teachers. However, as representatives of the population, the participants were from four different schools in four different districts. The participants were asked to respond to the semi-structured interview.

Needs Analysis Constructions

This needs analysis employed in-depth semi-structured interview adapted from Brown (2016). The main reason for using semi-structured interview was that there would be a clear set of instructions for interviewers as the questions were set early. Furthermore, open-ended questions in the interview gives the interviewee a chance to reveal their views openly (Bernard, 1988). To response to the research objectives, the model for this study was adapted from Dudley-Evans and St John's (1998) model.
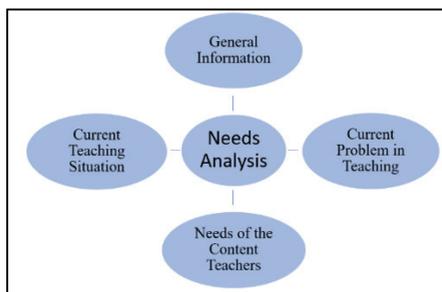
Figure 2. Needs Analysis Model adapted from Dudley-Evans and St John (1998)

The semi-structured interview was conducted through interview questions. They were divided into two main parts. Part I included general Information. Part II included three aspects of current teaching situation, current problem in teaching, and needs for teacher training. The interview questions were set mainly based on the 4Cs components of CLIL. An expert in the fields of CLIL and language teaching initially assessed the interview questions to confirm their validity and reliability and to make sure they were appropriate for the study's goals. In order to test the clarity and understandability of the questions, a pilot study was done using a teacher who was not in the final sample. Before performing the actual interviews with the participants, the interview questions were modified as needed based on the input from the pilot study. The semi-structured interview was conducted through interview questions. The researchers conducted the online interview via zoom with the teachers individually about 30 minutes each.

Data Analysis

Content analysis was used to analyse data. In the first step, the audio-recorded data obtained from semi-structured interview were transcribed in the Myanmar language. The transcribed data were translated to English and put them into the chart which contained all the responses to the questions respectively. To ensure accuracy, the translation process was validated by a retired English professor who compared the translated data with the original transcriptions in the Myanmar language. In the second step, data were classified and summarised. Once the data were organised, the salience words were picked up from a particular theme. In the third steps, data were summarised and interpreted. The presentation of the results are made based on three aspects of Teachers' General Information, Teachers' Current Teaching Practices, and Current Problems and Needs for Teacher Training.

Results

Aspect1: Teachers' General Information

It was found that all the four teachers were upper secondary school biology teachers. Their educational backgrounds were different. Two of them got Bachelor of Education (teacher 1 & 4) and the other one (teacher 2) got B.Sc. (Biology). The other one (teacher 3) has got the B.Sc. (Zoology) and she also obtained the Diploma in education. The teacher 4 is the only one who had less than 6 year-teaching-experience. Despite their differences in Educational background and teaching experience, all of them expressed that they had been struggling in teaching biology in the English language.

Aspect 2: Teachers' Current Teaching Practices

All four teachers used teaching methods emphasising content knowledge transmission to students; English knowledge and skills were apparently ignore. In reporting results in this issue, five points were recognised.

Firstly, it was found that the use of Myanmar language was quite prominent in their teaching. The two teachers (*teacher 1 and 3*) described their way of teaching as the traditional one which basically depended on translation method. These two teachers used their mother tongue as a medium of language in their classroom. They used their L1 in their teaching almost all the time except the text reading. It affected the students' understanding in content subject. The following extracts elaborate how they used the L1 in science content subject class.

Extract 1: I introduce the new terms to the students first by writing them on the whiteboard at the beginning -to introduce the topic-with the explanation in Myanmar. Then I ask them to read the text together with me. After each of the paragraph. I explain the ideas in Myanmar. Then I ask the students the comprehension check questions in Myanmar at the end. (teacher 1)

One teacher also used the translation method in her teaching. The two teachers' teaching methods were quite similar. However, difference between *teacher 1* and *teacher 3* were that *teacher 3* used the line-by-line translation in explaining the content knowledge to the students. This can be seen in the following extract:

Extract 2: I ask the students to underline the new key terms [technical vocabulary], explain the meaning in Myanmar, read the sentences one after another together with Myanmar explanation, tell the students general idea. I give 10 mins for individual reading…ask what they do not understand and finally I ask them some questions ..in Myanmar…concerning the content knowledge. If wrong, I explain the fact again. (teacher 3)

Secondly, from the above extract, it was also found that the teachers taught the students the key terms and new vocabulary prior to the explanation of the text. However, they had difficulties in teaching students in learning new vocabularies and understanding the content knowledge. This can also be seen in the following extracts of the other two teachers.

Extract 3: I tell the student what topic I am teaching, write the key terms on the board and ask them whether they know. I tell them the meaning of the words…… (teacher 2)

Extract 4: I let students read the text first and find the new/ difficult words for them. Then, I explain the words, give meaning. Sometimes I use the meaning given in the text. I ask them to look at the words and think what it is about. Then I discuss and explain it. (teacher 4)

Thirdly, the teachers had the desire to check the understanding of the students. Asking the comprehension check questions at the end of the lesson was one of the ways used in their teaching. When they checked their students understanding, teachers faced difficulties to make their students use English language. The following extracts present their desire.

*Extract 5: …I ask the students the comprehension check questions…
only in Myanmar at the end… (teacher 1)*

*Extract 6: …Then they can ask what they do not understand and finally
I ask them some questions concerning the content knowledge. If wrong, I explain
the fact again.   (teacher 3)*

One teacher used the comprehension questions not only at the end but
also during her explanation. This can be seen in the following extract.

*Extract 7: …..I give them the chance to ask what they don't understand
during the explanation……….I ask the questions on the content they learnt at
the end. (teacher 2)*

Fourthly, among four, three teachers generally did the reading task,
explanation of the text and follow-up comprehension question as were seen as
their main tasks. One teacher (*teacher 2*) encouraged the students to develop
their thinking skills. In doing so, she sometimes asked the students to think
about the particular process of the topic before reading. She encouraged her
students' cognition skill, communication skill and enhanced their interests.

*Extract 8: ….I use some diagrams but I do not explain it first. The
students need to think the process of it…(e.g. respiratory system) and also the
organs involved in the system. Then they can read the text and compare the
facts to check their thoughts are correct or not…(teacher 2)*

Finally, three teachers emphasised only on the content knowledge and
did not pay attention to the language. As a result, their students understand the
content knowledge but are not proficient in language and are weak in cognition

skill and culture knowledge. However, one teacher *(teacher 4)* paid attention to the language in explaining content. The use of language chunks in the text was witnessed. Then she asked the follow-up questions in English and the students could answer the questions using the chunks.

Extract 9: ….they read sentences one by one with them and explain it…dividing the sentences into phrases or clauses (chunks)…….I let them read the text in pairs… Then I explain the main ideas…..I ask them comprehension questions in English and they can answers…just phrases or clauses… sometimes it might not be effective. The students do not use English… (teacher 4)

The teacher commented that although English was encouraged in her class, no English usage was seen outside class.

To summarise, analysed data responding to research question 1, clearly addressed the four teachers' current teaching practices. It was found that the current teaching of biology at secondary level largely emphasised on the development of the content knowledge given in the text. English was the language used in learning materials. However, teachers only paid attention to content. Myanmar was used as a medium of instruction in the content classroom. Also, data revealed that the four teachers paid much attention on vocabularies but the thinking ability of the students was less emphasised. Although the content text was written in English, only one teacher put efforts on using the language to teach the particular content knowledge given in the text. However, it was found that she did not succeed in her content classroom teaching. English language was used in her class, but there was no effort to teach or use the language beyond the text.

Aspect 3: Current Problems and Needs for Teacher Training

The current problems and needs for teacher training could be seen through the interviewed data. The results of the analysis of their problems and their needs in teaching content subject in English language identified the skills or knowledge the content teachers need most for teacher training. In that, the content analysis of the secondary biology teachers interviewed data yielded seven themes: Teaching methodology, Content knowledge, English language for communication, Thinking skills, Activities, Assessment and Classroom management.

3.1 Teaching Methodology

Problems

Analysed data revealed that the four teachers did not have enough knowledge of teaching method that could facilitate the content teaching and learning. They mostly used the grammar-translation method in their content teaching. They had difficulties in explaining the content in English, but not in Myanmar. They tried to use different pedagogical techniques like chunking and explaining, but some students could not understand the content. With insufficient teaching methodology knowledge, they faced difficulties in using correct method. This resulted in students' less interests in learning which in turn led to their low ability in understanding and synthesising the learnt content. These problems can be seen in the following extracts.

Extract 10: I don't actually know how to teach biology content written in English, so I translated the text. It is difficult to translate the sentences although I know the words. I lost my confidence sometimes while teaching…… (teacher 1)

Extract 11: …I use the teaching technique that I think is suitable for the students, making chunks, I explained it many times. But, some students do not understand the meaning in the chunks. So, when I ask them questions, they cannot answer correctly. They might answer, but the language is not correct. So, I think sometime it might not be effective. (teacher 4)

Teacher's Needs

Data revealed that all four teachers needed a teaching method that could help them teach students effectively.

Extract 12: …how to teach biology instead of using translation? Are there any methods which can help us teach subject effectively…to help students to express their knowledge by themselves – in English, the language used in the text…not to do the rote-learning…. (teacher 4)

Extract 13: … I want guidelines or ways to help us teach students biology in English. Our teaching is not good. The students just listen, read and just answer our questions. How can we help them improve their knowledge and also how to check their understanding… (teacher 3)

It could be concluded that all four teachers employed the grammar translation teaching method in their science classes. Through the use of such teaching method, the overall objective of teaching was to enhance students' content knowledge. Enhancing English knowledge and skills was not the aim of the teaching and learning. Data also revealed that all four teachers would like to learn how to manage effective English medium instruction classroom teaching that facilitates students learning biology, enhances their thinking skills, and encourages them to practice English skills and gains English knowledge.

3.2 Content Knowledge

Problems

According to the analysed data, all four teachers faced difficulties in explaining content knowledge to their students. They reported that they did not have enough knowledge on the content. Data clearly indicated that all four teachers thought that their biology knowledge was not enough. Three teachers said that the concepts expressed in the text was difficult to understand, and also to explain the concepts. This can be seen in the following extract.

Extract 14:…I think I do not have enough content knowledge on a particular topic…I found difficulties in explaining the concepts given in the text… (teacher 1)

One teacher expressed that she tried to find the helpful references to improve her understanding in the particular topic.

Extract 15: … the text is difficult to understand for me and also for the students…so I find some references and when I explain them, I add concepts from the external sources…(teacher 2)

Teachers' Needs

The four teacher indicated that they wanted to attend a teacher training that educates them more about the content knowledge on particular topics included in the textbooks. They also needed training in teaching the particular lessons to the students. In addition, they also wanted to know how they could find resources. The following extracts show their needs in this area.

Extract 16: …I want to learn more about the content knowledge first… and how can I find the resources to get more understanding? (teacher 2)

Extract 17: If possible, some help from the subject experts that I want… I want them to share their knowledge on content and how to teach the particular content in the class…(teacher 3)

In short, all four teachers believed that they did not have sufficient content knowledge. Thus, they wanted to attend a teacher training to learn more about the content knowledge on a particular science topic with the supports of the experts. Promoting teachers' sharing knowledge of and terminology and vocabulary were in needed to develop their content knowledge.

3.3 The English Language for Communication Problems

Interview data revealed that three teachers expressed that their English language knowledge and skills were not good enough. Therefore, they could not effectively use it as a medium of classroom instruction. In this regard, sometimes they had difficulty comprehending the English written texts which in turn resulted in their inability to present the knowledge in class. Two teachers (teacher 1 and 3) expressed difficulty in explaining vocabulary in English, leading them to translate the words into Myanmar word by word. This can be seen in the following extract.

Extract 18: I lost confidence…my English is not good so … difficult to teach in English…translate all words and explain them in Myanmar… (teacher 3)

One teacher (teacher 4) tried to use the collaborative activities in the class, but she could not provide enough guidelines and especially language input for them. So the activities were not successful. Her statements can be seen in Extract 18.

Extract 18:…I ask them to work in pairs and in groups..I ask them to use English but very difficult for them…I cannot provide how they could communicate… (teacher 4)

The results showed that biology teachers in Myanmar need to improve their English knowledge and skills so that they can teach more effectively in English.

Teacher's Needs

From their insufficient English knowledge and skills, data revealed that all teachers wanted to improve reading and writing skills. *Teacher 2* and *4* wanted to learn how to analyse the language for their teaching purpose. They also wanted to know how to facilitate students in doing collaborative activities in terms of language that they need to use. These can be seen in the Extracts.

Extract 20: …I want to improve my English skills especially reading and writing…. may be a language proficiency course… (teacher 2)
Extract 21: …I want to study how to analyse the language used in the text to identify words, terms, phrases and structures that are new for the students in text..., and also the functions that learners need to use in their pair work and group work..(teacher 4)

To conclude, analysed data revealed that teachers had insufficient English knowledge and skills. Thus, they wanted to learn more English so that they could use it as the medium of classroom instruction, and to use it to work on pedagogical task for the students.

3.4 Thinking skills (Cognition)
Problems

Two teachers used some activities to promote students' thinking skills. However they noticed that students were unwilling to think, and so it was difficult for them to ask the critical thinking questions. The following extract reflects their challenges.

Extract 22: …. the students just want to learn the text by heart and not interested in..or..do not want to do the thinking skills ability… (teacher 2)

One of the teachers said that she had a little or no knowledge on promoting the students' thinking skills. She said, *"I don't know how to promote their thinking skills in learning subjects and I haven't tried it at all…"(teacher 3)*

Teacher's Needs

Data revealed that all teachers wanted to know how to conduct classroom activities that promote students' thinking skills as well as to motivate students' participation. This can be seen in the Extract 23 and 24.

Extract 23: …I want to know how to promote the thinking skills of the students…(teacher 1)

Extract 24: … If possible, I want to know the activities to develop their thinking skills…. how to get their participation in the activities…(teacher 3)

Here, the major challenge was that the teachers had limited pedagogical knowledge of conducting the cognitive activities. All four teachers wanted to know how to integrate the cognitive development in their content lessons.

3.5 Activities (Culture)
Problems
Of four, two teachers said that it was difficult to find time to do the activities concerning content or language. So, they rarely used the collaborative activities. The collaborative activities cannot be done successfully in a biology class due to the limited time, large class size and the teacher-led learning fashion. What the teachers said can be seen in the following extracts.

Extract 25:…the students lost interests in the activities…they are good at studying through recitation…no time to do the group work….and difficult to do it because many students are in the class….(teacher 2)
Extract 26: …when I ask students to do the pair work, they are happy to do it…but not successful…may be because of my instruction…wrong or not enough (teacher 4)

Teacher's Needs
All teachers would love to attend a teacher training to learn how to conduct activities that help students improve their thinking skills and language skills. In addition, they stated that they wanted to learn how to conduct the activities successfully as pair work or group work. Their needs can be seen in the extracts below.

Extract 27: I want to use extra exercises... to help students understand the content more…. for thinking skills and language skills also… I want to know how I can design them (teacher 3)

Extract 28: I want to learn how to analyse the language and I want to know how to teach English and do the pair/group work to give instruction to make them succeed…… (teacher 4)

To conclude, teachers had limited time to work on classroom activities. Therefore, they wanted to learn how to conduct the collaborative activities which represents the culture in the CLIL method and how to design CLIL activities.

3.6 Assessment

Problems

Data revealed that teachers believed that the current classroom assessment method might not be appropriate to assess their students' competence in both content and language. This was due to the nature of the classroom of a large size where teachers' feedback could not be done for all students.

Extract 29: I can only check their writing…. these are actually their learnt-by-heart products…so I think I just check their memorising skills…I don't like it… (teacher 4)

Extract 30: We have exam…but it is just used to test the students' recitation…. (teacher 1)

Teacher's Needs

The teachers wanted to know how to appropriately assess both content and language. One teacher was interested in assessing their communication skills. On the other hand, two teachers wanted to learn how to construct the effective assessment method for her class. Only one teacher, teacher 4, wanted to know how to assess both content and language skills.

To conclude, all four teachers realised that the current assessment was not suitable. They wanted to know how to assess the students' competence on content and the target language and how to give feedback. Based on the data, assessment and evaluation in CLIL would be the skills they need in the teacher training.

3.7 Classroom Management
Problems

There were some challenges that the teachers concerned when teaching in the classroom. All four teachers complained that the class has been very large. So they could not manage the class to benefit all individual students.

Extract 31: many students in the class so I cannot let them know their weakness..(teacher 1)

Extract 32: We have no time to deal with each student because of a large class size (teacher 2)

Teacher's Needs

It could be seen that the teachers wanted to learn how to manage their classroom teaching. This can be seen in the following extracts.

Extract 33: I want to know how to handle the big class… (teacher 2)

Extract 34:… how I can do to make all students participation during the lesson to help all students learn the content as well as language… (teacher 4)

It could be said that all four teachers have faced difficulties in controlling a large class. They wanted to learn how to control the class effectively to be able to scaffold individuals' learning. So, classroom management techniques were needed for the teachers to conduct the effective content teaching classrooms.

In addition to this, based on the data collected form this analysis, it was evident that the 4Cs principle would be the most suitable one as it covers almost all the aspects of the needs of the content teachers. It is also needed for the teachers to determine which particular content concept and language form would be taught and how they conduct the activities and assessment tasks to scaffold students' learning effectively. Thus, the proposed knowledge and skills based on the emerging themes are exactly concerned with the 4Cs principle of in order to lead the teachers to achieve an effective content teaching. The proposed knowledge and skills for the training course for the content teachers could be listed as *1) 4Cs principles in CLIL, 2) Lesson Planning to align language and content, 3) Promoting teachers' content knowledge sharing, 4) Developing teachers' language proficiency, 5) Analysing the language for lesson planning, 6) Providing language support 'guiding' and 'supporting', 7) Introduction to Bloom's Taxonomy, 8) Designing CLIL activities and managing collaborative work, 9) Assessment and Evaluation in CLIL* and *10) Classroom management techniques and classroom language.*

Discussion and Conclusion

This study aimed at exploring the current teaching methods used by biology teachers at upper secondary schools in Myanmar, investigating the difficulties they have when delivering science in English, and highlighting the knowledge and skills needed for effective teacher training.

It is worth mentioning that the results demonstrate that biology is currently taught at the secondary level with a focus on developing content knowledge from the textbook. Therefore, enhancing content knowledge and language skills of the students might not be possible while utilizing Myanmar as the medium of instruction. The study indicates that teaching new vocabulary before reading does not assist students to comprehend the desired content knowledge. As a result, students could struggle to develop their content knowledge as well as language knowledge and skills.

From the results, it could be seen that content teachers also need to improve their English communication abilities. This is congruent with Marsh's (2000) which indicated that teachers had limited training in how to conduct activities that help students build their knowledge and skills. Therefore, the 4Cs—communication, cooperation, critical thinking, and creativity—should be a part of an effective teacher training program, based on the needs analysis, in order to assist teachers in overcoming challenges and enhancing their content as well as language knowledge and skills.

From this study, it could be concluded that results from needs analysis yielded important suggestions for CLIL teacher training course for teachers who teach biology in upper secondary schools in Myanmar. The main suggestion is that the CLIL teacher training course are constructed based the 4Cs as it will help the teachers overcome all the challenges they had, and will enhance the needed content knowledge as well as language knowledge and

skills. This needs analysis and proposed skills and knowledge in 4Cs can not only improve biology teachers own language proficiency but also provide them a variety of activities to be used in their CLIL classroom.

In short, this study emphasises the significance of effective content teacher training in the subject area of biology. Teachers can simultaneously help their students improve language proficiency and content understanding by integrating language and content instruction. The proposed knowledge and skills for the CLIL teacher training course can serve as the foundation for creating effective pedagogical practices and encouraging successful student learning outcomes.

Acknowledgments

Researcher Biography

Sandar Htay is a lecturer at the Department of Linguistics, Yangon University of Foreign Languages, Myanmar. She has got her Bachelor Degree (Hons) in English from East Yangon University and she received her Master Degree in English from University of Yangon. She is now doing her PhD in Khon Kaen University, Thailand. Her research interests include Linguistics; Second Language Acquisition; and Content and Language Integrated Learning.

Sutida Ngonkum is an assistant professor in Faculty of Humanities and Social Sciences, Khon Kaen University. Her research interests include language teaching and learning, discourse analysis, and critical discourse analysis. She is a peer reviewer of Scopus indexed peer-reviewed international journals: Language Education and Acquisition Research Network (LEARN) Journal and Journal of Mekong Societies.

References

Bertaux, P., Coonan, C.M., Frigolos-Martin, M.J., & Mehisto, P. (2010). *The CLIL teacher competences grid. CLIL Cascade Network.* Retrieved January 20, 2023, from http://tplusm.net/CLIL_Competences_Grid_31.12.09.pdf.

Bloom, B.S.L. (1956). T*axonomy of Educational Objectives, Handbook I: The Cognitive Domain.* New York: David McKay.

British Council. (2014). E*nglish for Education College Trainers (EffECT Handbook).* Myanmar: British Council.

Brown, J. D. (2016). *Introducing Needs Analysis and English for Specific Purposes.* New York: Routledge.

Chostelidou, D., & Griva, E. (2013). Measuring the effect of implementing CLIL in higher education. An experimental research project. Procedia – Social and Behavioral Sciences, 166, 2169-2174. Retrieved December 15, 2022, from https://doi.org/10.1016/j.sbspro.2014.12.611.

Coyle, D. (2007). Content and language integrated learning: Towards a connected research agenda for CLIL pedagogies. *The International Journal of Bilingual Education and Bilingualism*, 10, 543-562.

Dafouz, E., Nuñez, B., Sancho, C. & Foran, D. (2007). Integrating CLIL at the tertiary level: Teachers' and students' reactions.In Marsh, D. & Wolff, D. (eds.) *Diverse contexts – converging goals: CLIL in Europe* (pp. 91-102). Frankfurt: Peter Lang.

Dale, L., and Tanner, L. (2012). *CLIL Activities: A Resource for Subject and Language Teachers.* Cambridge: Cambridge University Press.

European Union. (2015). *Erasmus+ programme.* Europe: EU publications.

Evans, S. and John, St. (2009). The medium of instruction in Hong Kong revisited: Policy and practice in the reformed Chinese and English streams. *Research Papers in Education,* 24(3), 287-309.

Hyland, K., and Shaw, P. (2016). *The Routledge Handbook of English for Academic Purposes*. New York: Routledge.

Johns, A. (1991). English for specific purposes: Its History and Contribution. In M. Celce-Murcia (Ed.), *Teaching English as a Second or Foreign Language* (pp. 67-77). Boston, MA: Heinle and Heinle Publishers.

Khalyapina, L. (Ed.). (2020). *Examining Content and Language Integrated Learning (CLIL) Theories and Practices.* Pennsylvania: IGI Global.

Lesca, U. (2012). *An Introduction to CLIL.* London: British Study Center.

Marsh, D. (2000). *An introduction to CLIL for parents and young people. Using languages to learn and learning to use languages.* Jyvaskyla: University of Jyvaskyla.

Mazher, U., Ahmed, M., & Aslam, M. (2015). Grammar Translation Method in ELT: Hindering the development of communicative skills at secondary level. *Journal of literature, languages, and linguistics,* 6(1), 65-72.

Mehisto, P. et al. (2008). *Uncovering CLIL: Content and Language Integrated Learning in Bilingual and Multilingual Education.* Macmillan, Oxford.

Ministry of Education. (2004). *Development of Education in Myanmar*. Myanmar: Ministry of Education.

Myint, M. (1992). *The teaching of English. Ministry of Education/ UNDP/ UNE-SCO Education Sector Study Project: Working Paper Series.* Myanmar: Myanmar Education Research Bureau.

Pérez Cañado, M. L. (2014). Teacher Training Needs for Bilingual Education: In-service Teacher Perception. *International Journal of Bilingual Education and Bilingualism,* 19(3):266-95.

Pérez Cañado, M. L. (2018). Innovations and Challenges in CLIL Teacher Training. *Theory Into Practice,* 57(3), 212-22.

Soe, T., Ko, T. and Myint, S. (2020). Attitudes towards English as a medium of instruction (EMI): a case study of University of Mandalay. *University of Mandalay Research Journal,* 11, 108-115.

Suwannoppharat, K., and Chinokul, S. (2015). Applying CLIL to English language teaching in Thailand: Issues and challenges. *Latin American Journal of Content & Language Integrated Learning,* 8(2), 237-254.

Ulla, M. B. (2017). Teacher training in Myanmar: teachers' perceptions and implications. *International Journal of Instruction,* 10(2), 103–118.

VandeCraen, P. (2007). Cognitive development and bilingualism in primary schools: teaching maths in a CLIL environment. In D. Marsh and D. Wolff (Eds.), Diverse Contexts – Converging Goals. (185–200). Frankfurt am Main: Peter Lang.

Weil, C. (2013). The current political and higher education context in Myanmar. In Institute of International Education (Ed.), *Investing in the future: rebuilding higher education in Myanmar* (pp. 12-16). New York: A briefing paper from IIE's center for international partnerships.

West, R. (1994). Needs Analysis in Language Teaching. *Journal of Language Teaching,* 21 (1), 1-19.