The Potential of CLIL for Promoting Critical Thinking Skills in Thailand

ศักยภาพของการเรียนรู้ตามแนวการบูรณาการเนื้อหาและภาษา เพื่อเสริมสร้างทักษะการคิดวิเคราะห์ในประเทศไทย

ภัสรา นามแสง

Pasara Namsaeng

สาขาวิชาภาษาอังกฤษ

English Language Department

คณะครุศาสตร์

Faculty of Education

มหาวิทยาลัยราชภัฏชัยภูมิ

Chaiyaphum Rajabhat University

บทคัดย่อ

การเรียนรู้ตามแนวการบูรณาการเนื้อหาและภาษา (CLIL) สามารถเสริมสร้าง
ทักษะการคิดวิเคราะห์โดยการออกแบบวิธีการเรียนการสอนได้หลากหลายวิธีโดยจะ
ต้องคำนึงถึงกรอบการเรียนรู้ตามแนวการบูรณาการเนื้อหาและภาษานั้น บทความนี้
มีวัตถุประสงค์เพื่อสร้างการตระหนักรู้ในการใช้ CLIL ของนักศึกษาระดับปริญญาตรี
ในสถาบันการศึกษาในประเทศไทย และเพื่อเสนอโมเดลการสอนภายใต้กรอบ 4Cs
ของ CLIL โดยมีการทบทวนวรรณกรรมที่เกี่ยวข้องได้แก่ หลักการและข้อดีของวิธีการ
เรียนรู้ตามแนวการบูรณาการเนื้อหาและภาษา การนำโมเดลการสอนการเรียนรู้
ของ CLIL ไปผสมผสานกับกรอบ 4Cs และศักยภาพในการเสริมสร้างทักษะการ
คิดวิเคราะห์ในประเทศไทย ซึ่งวิจัยนี้ได้มีการเสนอโมเดลการสอน CLIL สามขั้นตอนคือ
การนำเข้า (input) การประมวลผล (process) และ ผลผลิต (output) โดยในขั้นตอน

การนำเข้าจะเป็นการเน้นบทบาทสำคัญของเนื้อหา (content) และวัฒนธรรม (culture) ในการรับองค์ความรู้ขั้นแรก และในขั้นตอนการประมวลผลจะเป็นการรับรู้ (cognition) ทั้งในเชิงองค์ความรู้และภาษา และขั้นตอนสุดท้ายคือขั้นผลผลิตจะเป็นการมุ่งเน้น การสื่อสาร (communication) ในระหว่างการทำกิจกรรมของผู้เรียน อย่างไรก็ตาม การเสนอโมเดลสามขั้นตอนนี้เป็นเพียงขั้นตอนคร่าวๆตามกรอบการเรียนรู้เท่านั้น ส่วนขั้นตอนเชิงรายละเอียดอาจต้องมีการวิเคราะห์ความต้องการของผู้เรียน ความแตกต่างส่วนบุคคล และเทคนิคการสอนของผู้ปฏิบัติการสอนแต่ละคนอีกด้วย นอกจากนี้การศึกษาเพิ่มเติมควรจะมุ่งเน้นการนำโมเดลการสอน CLIL ไปปฏิบัติการ สอนในชั้นเรียนจริง

คำสำคัญ: การเรียนรู้ตามแนวการบูรณาการเนื้อหาและภาษา, โมเดลการสอน, การคิดวิเคราะห์

Abstract

Content and Language Integrated Learning (CLIL) can promote critical thinking skills through different tailored teaching approaches by considering the CLIL framework. This article aims to raise awareness of the use of CLIL in promoting undergraduates' critical thinking skills in educational institutions in Thailand, as well as to propose the teaching model underlying the 4Cs Framework of CLIL. The literature review covers the principles and advantages of CLIL, critical thinking and CLIL, the application of the CLIL model of 4Cs' integration, and the potential for promoting critical thinking skills in Thailand. The proposed CLIL teaching model indicates three stages: input, process, and output. At the stage of input, Content and Culture will play a significant role in receiving knowledge. During the stage of the process, Cognition will be emphasized by identifying knowledge and language. Finally, the stage of output will focus on Communication during students' tasks. The proposed steps are merely three rough steps underlying the CLIL principles. However, the detailed steps to follow may require needs analysis, individual differences, and practitioners' individual techniques. Anyhow, further studies should focus more on the implementation of the CLIL model in actual classrooms.

Keywords : CLIL, teaching model, critical thinking

Introduction

Thinking skills are divided into six levels particularly, remembering, understanding, applying, analyzing, evaluating, and creating respectively (Anderson & Krathwohl, 2001). The revision of Bloom's taxonomy (Krathwohl, 2002) separates these six thinking skills into Lower Order Thinking (LOT) and Higher Order Thinking (HOT). Of these thinking skills, higher-order thinking (HOT) has been claimed important for professionals and education.

Critical thinking (CT) or higher-order thinking is viewed as important skills in the 21st century (Nurhijah et al., 2020). Critical thinking skills are vital for higher education and future work. Graduate students require critical thinking skills to complete tasks and research studies. These skills such as having critical awareness, critical skills, critical review, and critical perspectives in order to solve problems as well as innovate new knowledge for graduate studies (The Open University, 2015) are generally embedded in the characteristics of graduates of higher education especially master's graduates. Employees also require critical thinking skills to perform their work. According to the ASEAN Qualification Reference Framework-AQRF (2020) and AQRF Referencing Report of Thailand-NQF (2017), out of 8 levels, 1. routine actions, 2. standard actions, 3. applying basic methods, general principles, and conceptual aspects, 4. technical and theoretical coverage and adaptive processes, 5. detailed technical and theoretical knowledge of a general field, 6. specialised technical and theoretical knowledge within a specific field, 7. involving critical and independent thinking as the basis for research, and 8. the creation of new knowledge or practice, critical thinking skills are highly needed at level 7 by the Ministry of Labor's Occupational Standard.

There are two main advantages of Thai university students who have critical thinking skills. First, it enhances students' professional readiness. The research area of critical thinking in business education (teaching knowledge and skills for the business industry) is increasing in the past ten years (Calma & Davies, 2020). In over 142,000 job advertisements, it is found that problem-solving skill is one of two fundamental skills required by the employer (Rios et al., 2020). To successfully run the organization, leaders need critical thinking skills in transferring knowledge to their subordinates through training, seminars, and workshops (Ross, Exposito & Kennedy, 2020). Another advantage is that critical thinking enhances students' academic readiness. Postgraduate courses require deep learning processes such as comprehension and reflection of the knowledge in producing creative works (Pereles et al., 2020), especially a thesis or dissertation. Postgraduate students require critical reasoning to support their argument when writing a research document. Unable to do so, they cannot complete their studies (Andrews, 2007). There is an attempt to measure the postgraduate students' critical thinking in writing, and it found that postgraduate students employ analyzing and synthesizing skills as well as metacognition to evaluate the information through the writing work. It is claimed that good writing reflects good critical thinking skills (Rahmat, 2020). As you can see that the benefits of critical thinking enhancement in Thai university students allow students to be ready for both educational and professional opportunities leading to an ability to compete with other people domestically and internationally. More importantly, with the ability to use metacognitive skills, the metaphase of the ability to think critically, in creating new knowledge, students embedded with critical thinking can create a body of knowledge serving the nation's needs in both educational and professional aspects.

Since critical thinking is needed for both higher education development and career. An empirical investigation into critical thinking in Thailand have been noticed (Ploysangwal, 2018). For example, Ploysangwal's (2018) explored the critical thinking of Thai undergraduates; results indicated the low level of their critical thinking skills (at the mean score of 5.93 marks out of 15 marks). The study indicated two possible reasons that Thai university students showed such as a low score. One of them was an inability to understand the reading passage due to the absence of grammatical knowledge, and another one was the unfamiliarity with analytical and critical questions leading to the lack of interpretation skills. Furthermore, critical thinking skills have been embedded in the industry 4.0 concept integrating new core elements; innovation, knowledge, technology, and creativity, which this concept derived from Thai national policy. It shows a poor level of youths' readiness for Industry 4.0 (Puriwat & Tripopsakul, 2020). Thus, it shows that Thai university students have little knowledge about critical thinking skills.

Several scholars propose a different set of critical thinking steps, which are the approach to nurturing students to think critically through the clear techniques to follow and gradually decreasing support from the practitioner. For example, Rasmussen University (2020) suggests eight steps of critical thinking; reflection, analysis, acquisition of information, creativity, structuring arguments, decision making, commitment, and debate. Similarly, Reasoninglab (2020) offers 6 steps of critical thinking; organizing information, structuring reasoning, considering the evidence, identifying assumptions, evaluating arguments, and communicating conclusion. Likewise, the University of Florida Training and Organizational Development (2020) provides six systematic steps of critical thinking: interpretation, analysis, inference, evaluation, explanation, and self-regulation. In the same line, Elmansy (2016) proposed six steps of critical

thinking; knowledge, comprehension, application, analysis, synthesis, and acting taking. To conclude, it can clearly see that there some common steps in promoting critical thinking such as analysis, evaluation, making an argument.

To successfully encourage students' critical thinking, four factors should be considered. The first factor is personal factors such as personal status, attitude, and child-rearing. The second factor is student factors such as the ability to read, learning motivation, attitude, and emotional intelligence. The last two factors are education and teacher, such as teaching methods, teaching and learning materials, and learning atmospheres (Mahapoonyanont, 2012). Slameto (2017) found that teachers can scaffold the student's critical thinking through instructional development. Teachers as facilitators require a well-designed teaching plan to support students' learning motivation, readiness, and prior knowledge in order to maximize students' critical thinking. Thus, critical thinking can be nurtured through education since teaching and learning is one of the mechanisms fostering Thai university students' critical thinking through different teaching models. By considering four factors, personal factors, student factors, education factors, as well as teacher factors can mutually support students' critical thinking. Anyhow, education and teacher factors are likely most focused, as evidenced in a number of teaching and learning approaches, such as the use of Socratic Reflection Prompts (Hsu et al., 2022), the employment of Decision-Based Learning (Plummer, 2022), and the use of open-ended questions and Activities-Based Learning (Monrat et al., 2022) promoting critical thinking.

This current article, however, focuses on the Content and Language Integrated Learning (CLIL) approach, with the notion that CLIL can help promote critical thinking in an effective way. CLIL has been widely implemented in the Thai context beforehand. For example, the success of using CLIL in promoting

writing skills (Chansri & Wasanasomsithi, 2016), the clear teaching steps of CLIL have been proposed (Luanganggoon, 2020) in order to maximize the students' academic achievement, and CLIL has been proved to improve students' social innovation knowledge, communicative skills, cultural awareness, and especially critical thinking ability (Buphate et al., 2018). As a university lecturer, with the low level of undergraduates' critical thinking skills as mentioned, it is important to raise awareness of the use of CLIL in promoting undergraduates' critical thinking skills in higher education as soon as possible.

Content and Language Integrated Learning (CLIL)

Content and Language Integrated Learning (CLIL) has been an approach widely employed. CLIL has been defined as a dual-focused educational approach with an emphasis on content or language (Coyle, Hood & Marsh, 2010). CLIL is also perceived as the use of a non-mother tongue as a medium instruction in the classroom (Dalton-Puffer, 2007). The study views CLIL as the combination of English language and general content study that weighs more on language.

1. Principles of CLIL

CLIL can be seen as the Language Triptych which is three components: 1) language of learning, 2) language for learning, and 3) language through learning. Equally trisecting the Language Triptych, 1) Language of learning means a basic language knowledge in accessing skills and content, 2) language for learning is viewed as the language used in an environment, and 3) language through learning means active learning and thinking in promoting a deeper level of learning (Coyle, 2007).

Since CLIL has two focuses: language and content, there may an imbalance of language and content levels. In order to respond to this misbalancing, CLIL Matrix is proposed (Cummins' Matrix in Coyle et al., 2010). The four quadrants of low cognitive demand, high cognitive demand, low linguistic demand, and high linguistic demand are presented. The practitioners need to analyze students as well as support students' confidence before scaffolding different amounts of language or linguistic demands in order to implement CLIL lessons into the classroom.

CLIL is also viewed as a framework. The 4Cs Framework of CLIL includes Cognition, Culture, Content, and Communication (Coyle et al., 2010; Abudlkareem, 2020). 1) Content is subject matters such as biology, music, geography, etc., 2) Communication is the use and study of language, 3) Cognition is the process of thinking and learning, and 4) Culture is the understanding of intercultural communication (Coyle, Hood & Marsh, 2010).

The Language Triptych, CLIL Matrix, and 4Cs Framework of CLIL have been viewed in various learning dimensions through the balancing of language and content properly, taking into account the current levels of both language and content, and framing the essential components that are collaboratively related and build a strong CLILL pedagogical approach.

2. Advantages of CLIL

There are several benefits of CLIL. It helps 1) developing intercultural knowledge, 2) improving language competence as well as multilingual attitudes holistically, 3) providing a chance to get exposed to the target language, 4) increasing students' motivation, and 5) building students' confidence which nurtures a can-do attitude leading to learning acceleration (Apsel, 2012). Two major approaches used in CLIL are task-based learning and project-based

learning. This current study relies on the project-based learning which is characterized by five advantages: centrality, question-driven, investigation, autonomy, and realism. Centrality focuses on a project as a central interest of the lesson, which allows a free investigation as well as discussion among the students. Thus, the students sense autonomous learning and feel the authenticity in the project setting (Thomas, 2000). Project-based learning was chosen because it allows self-driven students to work primarily in groups or pairs to produce realistic and meaningful outputs.

Critical Thinking and CLIL

In addition to its capacity to enhance students' content knowledge and language knowledge, CLIL is claimed to raise students' critical thinking skills. This can be done through effective manipulation of CLIL's components of 4Cs. This is due to the fact critical thinking skills usually result from the effective integration of content, communication, cognition, and culture into teaching and learning (Coyle et al., 2010). First, content plays an important role in students' critical thinking. Content put forwards students' higher-order thinking. It seems impossible to talk about mastering content and language without considering the range of thinking skills (Coyle, Hood & Marsh, 2010). Anderson and Krathwohl (2001) revised Bloom's taxonomy by allocating six different levels of the cognitive process dimension; lower-order thinking (remembering, understanding, and applying) and higher-order thinking (analyzing, evaluating, and creating). Also, the levels of knowledge dimension are also given; factual knowledge, conceptual knowledge, procedural knowledge, and metacognitive knowledge. The use of content in CLIL helps to produce students' own knowledge. CLIL is a mainstream program that allows the students to get exposed and to practice the target language while using content subjects,

which allow the students to create and develop their own knowledge and to have their own interpretation of the content (Coyle et al., 2010; Richards & Rodgers, 2016, p. 116). At this point, CLIL promotes students to critically think beyond the content itself. Moreover, it is vital to deliberately select the appropriate content for teaching especially, since the content affects their critical thinking concepts, the revision of content and curriculum is important for university students to reach the target level of critical thinking (Khademi, 2020; Tathahira, 2020).

Second, Communication is a tool in expressing critical thinking for studying and using language. As students make meaning of the content, conveying their critical thinking requires different channels of communication. As mentioned in critical thinking steps, the common processes of critical thinking are debating, communicating, explaining, and action-taking, which requires communication skills in conveying the students' ideas (Elmansy, 2016; Rasmussen University, 2020; Reasoninglab, 2020; The University of Florida Training and Organizational Development, 2020). CLIL emphasizes communication and information exchange (Richards & Rodgers, 2016, p. 116). The exchange of ideas also leads students to critically think, and the spontaneous discussion in the group also supports the psychological activities, which fosters the students' synergy through opinions, ideas, and views towards the content (Karimi & Veisi, 2016). In brief, communication works as an activity in conveying creative skills.

Third, cognition is the process of thinking and learning, and students level up their higher-order thinking skills. It is an intrinsic mechanism in the human brain that primarily needs information supports. Elmansy (2016) indicated that knowledge is the very first step in producing CT. Both CLIL and critical thinking require sufficient input as fundamental knowledge in entailing

other CLIL activities or promoting critical thinking skills. Finally, culture is the comprehension of intercultural communication. The culture is embedded with the customs, life living, and how each group of people views the world; therefore, culture is interconnected with language and thinking. Culture in the CLIL classroom requires deep learning and time taking due to the association of specific knowledge such as folk songs, costumes, rituals, etc. It; however, can interexchange through the interaction in the classroom, in which the students are exposed to different cultures in CLIL classroom (Coyle et al., 2010). According to Risdianto et al. (2020) and Hong et al. (2020), critical thinking can be influenced by the local culture because it helps an individual make an appropriate judgment for oneself as well as its group of a community.

Integration of the 4Cs Framework of CLIL; content, communication, cognition, and culture mutually support critical thinking skills. Content together with intercultural knowledge makes students have a deep understanding of subject matters allowing the students to cognitively think and communicate their creatively critical thinking ideas. To sum up, the effective integration of CLIL's components could be a feasible pedagogical model for Thai university students. This model can be explained through three steps of critical thinking; input, process, and output (the I-P-O Model), which were earlier proved in successfully implementing teamwork through setting goals, orientating goals, cohesion, and effectiveness positively (Yu, 2005). Content and culture work as an input, in which content allows students to access different kinds and levels of knowledge, and intercultural knowledge makes students have deep comprehension in the context. Cognition works as a process of thinking arousing students to analyze, synthesize, evaluate, and create critical thinking ideas. The last step is output. Communication through conveying, debating, and explaining helps students expressing critical thinking. Plus, with interaction

taking place in students' discussions, students have fostered their synergy through an exchange of opinions, ideas, and views. With great support from all elements, this pedagogical model is high potential in promoting Thai university students' critical thinking; a missing element may lead to an incomplete critical thinking process. Figure 1 presents the conceptual framework of the current study.
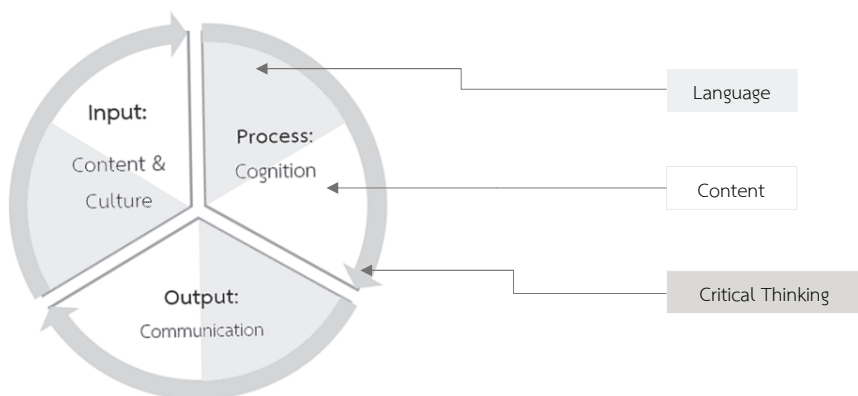

Figure 1. The Propose of CLIL Principles in Promoting Critical Thinking

The Application of CLIL model of 4Cs' integration

The British Council (2020) briefly explains the overview of CLIL that apart from the mentioned 4 Cs (Content, Communication, Cognition, and Culture), a CLIL lesson should combine 4 language skills; listening, reading, speaking, and writing. In addition, a CLIL lesson should pay attention to both receptive and productive skills, humanistic, communication, lexical approach rather than a grammatical approach, and students' learning styles. According to The British Council (2020), a CLIL Lesson Framework comprises 4 stages: 1) processing the text, 2) identifying and organizing of knowledge, 3) identifying

the language, and 4) providing tasks for students. Compared with the proposed CLIL Principles in Promoting Critical Thinking as mentioned in Figure 1, a CLIL lesson framework can be rewritten as follows.
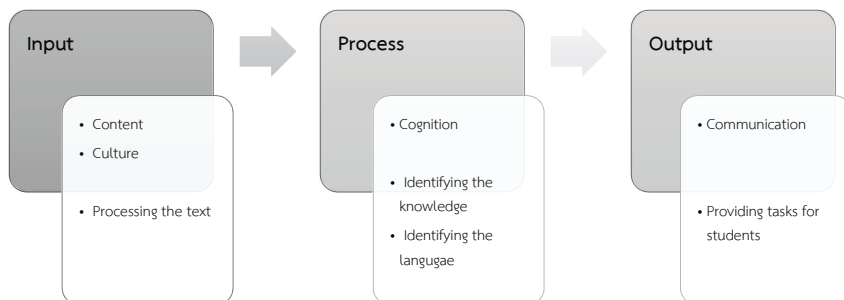

Input

- Content
- Culture

- Processing the text

Process

- Cognition

- Identifying the knowledge
- Identifying the langugae

Output

- Communication

- Providing tasks for students

Figure 2. The Integration of CLIL Principles and Lesson Framework

Figure 2 explains the process of teaching CLIL by using CLIL principles and CLIL lesson framework. To successfully implement the critical thinking skills in the CLIL teaching model, the development of the CLIL lesson plan must be embedded with critical thinking skills.

Stage 1. Input (Content and Culture)

▪ To engage the student by providing interesting content through receptive skills (listening and reading).

▪ To make sure the students fully understand both content and culture.

At the stage of input, it is vital to engage students by introducing new and interesting content, in particular culture, in which they are more openminded and fully comprehensive.

Stage 2. Process (Cognition)

▪ To motivate students to identify the received knowledge by guiding them on how to take notes, draw a mind-map or a diagram in order to foster

their critical thinking skills. Higher-order thinking skills questions should be addressed.

■ To scaffold students to identify the language learned by providing both implicit and explicit instructions.

At the stage of process, students should be motivated by guiding possible notetaking techniques to get a clearer picture of the content and to drive critical questions in order to clarify some complex comprehensive issues. After deliberately understanding, language knowledge should be considered either through implicit or explicit instructions or both.

Stage 3. Output (Communication)

■ To raise students' confidence by relating the information to students' personal experiences through communication.

■ To promote students' critical thinking through a project-based approach whereas students have a chance to produce the language through productive skills (writing and speaking)

At the stage of output, students' confidence will be emphasized as a preparation for producing a piece of language through communication. Sharing personal experiences and working in groups aids in the elimination of negative effects in language production.

Technology-integrated language learning can be employed in every stage such as a video provided at the stage of input, an online task/ exercise/ quiz provided as the stages of process and output.

CLIL, together with its practitioners, their designed lessons, and activities, makes CLIL effective in promoting critical thinking. This proposed teaching model was derived from the rearrangement of the combination of the original CLIL frameworks together with the previous proposed studies.

The Potential of CLIL for Promoting Critical Thinking Skills in Thailand

In Thai settings, there are a number of studies investigating CLIL and critical thinking skills at the university level. Regarding CLIL construct, a previous study found that CLIL enhances university students' academic learning since it helps fill the gap between language teaching theory and practice (Luanganggoon, 2020). Second, CLIL has also been studied with the assessments, in which it helps them know how to trust themselves (self-reliance) when doing self-assessment as well as to be encouraged in engaging CLIL activities (Nanni & Hale, 2020). Third, CLIL has also been studied with technology. The investigation found that CLIL and technology expand the dimension of knowledge (content), increase adaptability skills (culture), raise the students' motivation (communication), and interestingly develop analyzing and evaluating skills (cognition) (Ivanova & Zarovniaeva, 2020). CLIL also studied with teachers' implementation into the classroom. Though a number of advantages, the novice teachers have difficulties in using technology integrating with CLIL (Kwangsawad, 2020). Lastly, CLIL has also been studied with the students' confidence. The students' confidence seems low due to the language barrier. It is important to design an appropriate lesson plan to naturally support the students in the CLIL class (Kaewngam et al., 2020). The mentioned studies touched upon critical thinking skills; however, critical thinking has not been practically studied with CLIL yet. The current research expands knowledge from these previous ones.

Regarding the studies about critical thinking skills at the university level in Thailand, there is a little number of research studies found in the Thai context. Tamronglak (2020) suggests that the university must develop a curriculum that focuses more on critical-thinking and problem-solving skills. In the year 2019, VARK Learning Styles; visual, auditory, reading/writing, and kinesthetic have been experimentally studied to promote critical thinking in Thai

university students (Wongsaree, 2019). However, without the followed-up activities and depth level of kinesthetic, it is questionable whether this model is appropriate for university students. Another study at the university's level was about the university students' self-assessment of their critical thinking skills (Konchiab & Mingkwan, 2020). Though the students found themselves developing their critical thinking skills over the three phases, a notion of using the standard critical thinking assessment might weaken this study. Moreover, the collaborative project has also been employed in promoting two groups of US and Thai university students' cross-cultural communication and critical thinking skills. Though US students showed greater development; however, this study did not much support the Thai group who seemed to have low critical thinking as a whole (Duffy, 2020). To the best of the researcher's knowledge, there is no consolidated study found at Thai university's level in employing CLIL in promoting critical thinking skills.

This CLIL teaching model, as proposed earlier, can facilitate Thai students' critical thinking. With the inclusion of limitations found from the previous studies, the teaching model helps to fill the missing piece of information and support the completeness of the knowledge. First, the CLIL teaching model will be designed to be appropriate for the undergraduate level by using a project-based approach rather than a kinesthetic. The complexity of content and language will be considered appropriately. Second, the critical thinking standard assessment will be employed rather than critical thinking self-assessment since it provides solid evidence rather than students' perceptions. Third, the intercultural knowledge embedded in the CLIL teaching model will be more emphasized to minimize misinterpretation of the critical thinking concepts. Fourth, student's motivation, confidence, and engagement will be promoted to ensure students' involvement. Fifth, with technology-supported

language learning, the project-based approach provided can be done variously and effectively. Finally, the balancing roles among students, teachers, and teaching materials are taken into account in order to implement the successful CLIL teaching model.

Conclusion

There is high potential for using CLIL in promoting critical thinking skills since it fosters knowledge along with the target language. They are mutually fostered by the support of cognition, culture, content, and communication. It is a practical language to use and promotes critical thinking skills. In fact, critical thinking skills usually result from the effective integration of content, communication, cognition, and culture into teaching and learning. With the critical thinking problems, we are currently facing, CLIL could be a suitable solution to promote critical thinking skills in Thai students. As mentioned, the benefits of CLIL and the deliberate implementation of the CLIL model into the classroom will potentially enhance the Thai students' learning achievements as well as their critical thinking skills at the same time.

The three steps proposed underlying the CLIL principles contribute to the deeper insight of the CLIL approach in territory education in Thailand for both the students and the teachers. For the students, they are aware of the CLIL activities and critical thinking, which will be beneficial for them to adapt those skills for their higher education and future employment. The proposed teaching and learning model aids in the development of autonomous learning underlying English language competence and critical thinking skills as abilities to critically create their own knowledge, which is regarded as an important researcher qualification required by the nation. This study provides one of the teaching and learning approaches in which its teaching model can be useful

for teachers, and they can develop and apply this model in their own setting by redesigning the roles to best suit their students. The proposed model might also contribute new knowledge to society in an aspect of language instruction. However, there is no specific step to follow in order to avoid the generalization of the particular settings, including needs analysis, individual differences, and practitioners' individual techniques. There is still a need to implement the CLIL model into actual teaching and learning.

References

Abudlkareem, R. Q. H. (2020). The Effectiveness of Integrating CLIL Principles in a Conversation Course at the University of Sulaimani. *Journal of the University of Garmian*, *7*, 1.

Anderson, L.W., and Krathwohl, D.R. (2001). *A Taxonomy of Learning, Teaching, and Assessing: A Revision of Bloom's Taxonomy of Educational Objectives*. New York: Longman. P.

Andrews, R. (2007). Argumentation, critical thinking and the postgraduate dissertation. *Educational Review*, *59*(1), 1-18.

Apsel, C. (2012). Coping with CLIL: Dropouts from CLIL Streams in Germany. International CLIL Research Journal, 1(4), 47-56. Retrieved from: http://www.icrj.eu/14/article5.html.

Associate of Southeast ASEAN Nations. (2017). AQRF Referencing Report of Thailand. https://asean.org/storage/2017/03/TH_final-ref.-report-clean.docx.pdf

Associate of Southeast ASEAN Nations. (2020). ASEAN Qualification Research Framework (AQRF) Referencing Guideline. https://asean.org/storage/2017/03/AQRF-Referencing-Guidelines-2020-Final.pdf.

British Council. (2020). CLIL: A lesson framework. https://www.teachingenglish. org.uk/article/clil-a-lesson-framework

Buphate, T., Inta, K., & Esteban, R. H. (2018). A CLIL APPROACH IN THAILAND UNIVERSITY SETTING: TEACHING DESIGN THINKING THROUGH ENGLISH. Learners' Perceived Skills for Twenty-First Century from the Integration of Design, 58.

Calma, A., & Davies, M. (2020). Critical thinking in business education: current outlook and future prospects. *Studies in Higher Education*, 1-17.

Chansri, C., & Wasanasomsithi, P. (2016). Implementing CLIL in Higher Education in Thailand: The Extent to Which CLIL Improves Agricultural Students' Writing Ability, Agricultural Content, and Cultural Knowledge. PASAA: Journal of Language Teaching and Learning in Thailand, 51, 15-38.

Coyle, D. (2007). Content and language integrated learning: Towards a connected research agenda for CLIL pedagogies. International journal of bilingual education and bilingualism, 10(5), 543-562.

Coyle, D., Hood, P., & Marsh, (2010). CLIL: Content and Language Integrated Learning. *Cambridge: Cambridge University Press*.

Coyle, D., Hood, P., & Marsh, D. (2010). *Content and language integrated learning*. Ernst Klett Sprachen.

Dalton-Puffer, C. (2007). *Discourse in content and language integrated learning (CLIL) classrooms* (Vol. 20). John Benjamins Pub.

Duffy, L. N., Stone, G. A., Townsend, J., & Cathey, J. (2020). Rethinking Curriculum Internationalization: Virtual Exchange as a Means to Attaining Global Competencies, Developing Critical Thinking, and Experiencing Transformative Learning. *SCHOLE: A Journal of Leisure Studies and Recreation Education*, 1-15.

Elmansy, R. (2016). 6 Steps for Effective Critical Thinking. https://www.designorate.
   com/steps-effective-critical-thinking/

Hong, L., Sandaran, S. C., & Fang, W. (2020). Intercultural Communication
   Competence with Critical Thinking on Foreign Language Teaching in
   University under Globalization. *Journal of Critical Reviews*, *7*(11),
   627-630.

Hsu, F. H., Lin, I. H., Yeh, H. C., & Chen, N. S. (2022). Effect of Socratic
   Reflection Prompts via video-based learning system on elementary
   school students' critical thinking skills. *Computers & Education*,
   104497.

Ivanova, R. P., & Zarovniaeva, S. S. (2020). Application of CLIL Technology for
   the Bachelor's Program "Pedagogics with Two Majors: Foreign
   Language (English) and Computer Science". *ARPHA Proceedings*, *3*, 903.

Kaewngam, S., Chauvatcharin, N., & Kewara, P. (2020). Clil in Genetics: Class
   Activity and English Language Usage in Classroom. *Scholar: Human
   Sciences*, *12*(1), 347-347.

Karimi, L., & Veisi, F. (2016). The impact of teaching critical thinking skills on
   reading comprehension of Iranian intermediate EFL learners. *Theory
   and Practice in Language Studies*, *6*(9), 1869-1876.

Khademi, S. (2020). Content Analysis of "Religion and Life" Curriculum in the
   High School Program in Iran in Terms of the Emphasis on Students'
   Creativity, Critical Thinking, and Self-Assertiveness. *Journal of
   Education Experiences, 3*(2), 121-132.

Konchiab, S. & Mingkwan, G. (2020). Self-assessments on Learning and
   Innovation Skills of Thai Students Participating in Design Thinking for
   Social Innovation Activities. *Journal of Community Development and
   Life Quality*, *8*(2), 327-338.

Krathwohl, D. R. (2002). A revision of Bloom's taxonomy: An overview. *Theory into practice*, *41*(4), 212-218.

Kwangsawad, T. (2020). Beginning teacher induction program for technology integration in CLIL. *Asian Journal of Interdisciplinary Research*, *3*(4), 22-33.

Leontjev, D., & deBoer, M. (2020). Conceptualising Assessment and Learning in the CLIL Context. An Introduction. In *Assessment and Learning in Content and Language Integrated Learning (CLIL) Classrooms* (pp. 27-1). Springer, Cham.

Luanganggoon, N. (2020). Content and Language Integrated Learning (CLIL) Teaching Practices in Thailand Higher Education. *The Asian ESP Journal*, 233.

Luanganggoon, N. (2020). Content and language integrated learning (CLIL) teaching practices in Thailand higher education. The Asian ESP Journal, 16(4), 233-258.

Mahapoonyanont, N. (2012). The causal model of some factors affecting critical thinking abilities. *Procedia-Social and Behavioral Sciences*, *46*, 146-150.

Monrat, N., Phaksunchai, M., & Chonchaiya, R. (2022). Developing Students' Mathematical Critical Thinking Skills Using Open-Ended Questions and Activities Based on Student Learning Preferences. Education Research International, 2022.

Nanni, A., & Hale, C. C. (2020). Academic Culture as Content: Self-Assessment in the CLIL Classroom in the International Liberal Arts University. In *Assessment and Learning in Content and Language Integrated Learning (CLIL) Classrooms* (pp. 83-57). Springer, Cham.

Nurhijah, S. S., Wulan, A. R., & Diana, S. (2020, April). Implementation of formative assessment through oral feedback to develop 21st century critical thinking skills of student on plantae learning. In *Journal of Physics: Conference Series* (Vol. 1521, No. 4, p. 042021). IOP Publishing.

Pereles, A., Nunez, J. C., Rodriguez, C., Fernandez, E., & Rosario, P. (2020). Personal and Instructional Variables Related to the Learning Process in Postgraduate Courses. *Psicothema*, *32*(4), 525-532.

Ploysangwal, W. (2018). An Assessment of Critical Thinking Skills of Thai Undergraduate Students in Private Thai Universities in Bangkok through an Analytical and Critical Reading Test. *University of the Thai Chamber of Commerce Journal Humanities and Social Sciences*, *38*(3), 75-91.

Plummer, K. J., Kebritchi, M., Leary, H. M., & Halverson, D. M. (2022). Enhancing Critical Thinking Skills through Decision-Based Learning. Innovative Higher Education, 1-24.

Puriwat, W., & Tripopsakul, S. (2020). Preparing for Industry 4.0--Will Youths Have Enough Essential Skills?: An Evidence from Thailand. *International Journal of Instruction*, *13*(3), 89-104.

Rahmat, N. H. (2020). Thinking about thinking in writing. *European Journal of Literature, Language and Linguistics Studies, 3*(4), 20-37.

Rasmussen University. (2020). Steps to Critical Thinking. https://guides.rasmussen.edu/criticalthinking/steps

Reasoninglab. (2020). 6 Steps to better critical thinking. https://www.reasoninglab.com/steps/

Richards, J. C., & Rodgers, T. S. (2016). *Approaches and methods in language teaching*. Cambridge university press.

Rios, J. A., Ling, G., Pugh, R., Becker, D., & Bacall, A. (2020). Identifying critical 21st-century skills for workplace success: a content analysis of job advertisements. *Educational Researcher*, *49*(2), 80-89.

Risdianto, E., Dinissjah, M. J., & Nirwana, M. K. (2020). The Effect of Ethno Science-Based Direct Instruction Learning Model in Physics Learning on Students' Critical Thinking Skill. *Universal Journal of Educational Research*, *8*(2), 611-615.

Ross, D. B., Exposito, J. A., & Kennedy, T. (2020). Stress and its relationship to leadership and a healthy workplace culture. In *Occupational Stress: Breakthroughs in Research and Practice* (pp. 193-161). IGI Global.

Slameto, S. (2017). Critical thinking and its affecting factors. *Jurnal Penelitian Humaniora*, *18*(2), 1-11.

Tathahira, T. (2020). Promoting Students' Critical Thinking Through Online Learning in Higher Education: Challenges and Strategies. *Englisia: Journal of Language, Education, and Humanities*, *8*(1), 79-92.

The Open University. (2015). Characteristics of Master's graduates. https://www.open.edu/openlearn/ocw/pluginfile.php/757309/mod_resource/content/5/Session%201%2C%20Activity%203%2C%20Extract%202.pdf

Thomas, J. W. (2000). A review of research on project-based learning. San Rafael, CA: Autodesk Foundation.

University of Florida Training and Organizational Development. (2020). A Systematic Process for Critical Thinking. http://training.hr.ufl.edu/resources/LeadershipToolkit/job_aids/SystematicProcessforCriticalThinking.pdf

Wongsaree, C. (2019). Teaching to Critical thinking in Generation Z Nursing
        Student: A Review of Literature. *Journal of The Royal Thai Army Nurs-
        es*, *20*(1), 21-30.

Yu, C. F. (2005). An I-P-O model of team goal, leader goal orientation, team
        cohesiveness, and team effectiveness. Texas A&M University.