

Report of Teaching Practice at Satit PIM Demonstration School

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1. Introduction

The purpose of this paper is to give a brief overview of the teaching practice conducted at Satit Panyapiwat Institute of Management (PIM) Demonstration School (Satit PIM hereafter) in January, 2019. Satit PIM is a secondary school (both middle and upper schools) situated in Bangkok, Thailand. It is hoped that this report can serve as a reference to students interested in participating in this programme or practitioners interested in starting a similar programme. First, we introduce the PIM maths programme. Next, we introduce this year's participants and programme schedule. We hoped that the lessons would be compatible with a Content Language and Integrated Learning (CLIL) Approach. Therefore, we introduce CLIL and a lesson taught by the students and discuss the extent to which it incorporated CLIL principles. Lastly, we introduce participants' comments on the programme and summarise what this programme achieved and further issues for next year's teaching practice.

2. The PIM Demonstration School Maths Teaching Programme

The Faculty of Education of Iwate University and Satit PIM started a maths teaching programme in 2018. The curriculum of Satit PIM is based on Finnish Educational principles, which have been attracting global attention recently. The school opened in the year 2017. At the time of this study, there were students in the first and second year and there were five classes per grade. Each class consisted of 29-32 students. Eventually, the school will have students from grades 7 to 12. Maths classes were conducted in the Thai, English, and Chinese language. All students had iPads which were used across all subjects.

Nakamura, Honda, Yamazaki, and Hall (2018) point out that teaching practice programmes for Japanese universities are now popular. However, the majority are in the field of language teaching, and teaching maths is quite

unique. With the recent trend of CLIL (Sasajima, 2011), Japanese university students teaching maths in English to Thai junior high school students has relevance and potential for further development.

This teaching practice was conducted as part of the School Internship Programme (英語インターンシップB) which is in the current curriculum of the Faculty of Education at Iwate University. The programme aims at enhancing the participants' teaching skills, deepening their understanding of their subject matter, and developing their intercultural communicative competence (Byram, 1997).

3. Programme Participants and Schedule

The programme took place from January 6 to 13, 2019. Two instructors from the Iwate University Faculty of Education Maths Department and one from the English Department accompanied four students (1 female and 3 male). Likewise, three students were from the Maths Department and one was from the English Department. The profiles of the teaching teams are given below in Table 1, pseudonyms are used for their names. English qualifications refer to the highest level which students had attained on standardised tests. Table 1 shows that a high level of English was not necessary to participate in the programme. Rather, it was hoped that participants could pool their respective strengths, maths or English, to conduct a lesson of high quality.

Table 1. PIM Teaching Team Profiles

Team/ Topic	Name	Year	Department	English qualifications
Pair A: Scales	Seiji	4	Maths	NA
	Sosuke	4	English	TOEIC 865
Pair B: Probability	Mika	3	Maths	Eiken Level Pre-2
	Shunsuke	4	Maths	TOEIC 585

Table 2 shows the overall schedule from participant selection and lesson preparation to the actual visit. There were eight students who applied, and

four students were selected based on their overall academic performance and what they wrote on the application form to explain their purpose for participating in the programme. After the selection, the participant students met with the instructors once to introduce themselves and start discussing their lesson plans. After that, from October to December, the students worked autonomously in pairs to prepare for and discuss the lesson contents including creating class materials. The maths instructors gave advice on the maths elements and the English instructor helped with classroom English.

Table 2. Schedule of the PIM Maths Teaching Internship

Dates	Activity
June 19, 2018	Explanation of the programme
July 3	Participant applications submitted
July 10	Participants notified of acceptance
October - December	Class preparation
Jan. 6, 2019	Arrival in Bangkok
Jan. 7	Meeting with the teachers and coordinators of Satit PIM Introduction of PIM and Satit PIM Introduction of Iwate University Discussing the lesson plans with Satit PIM teachers
Jan 8	Lesson demonstration for Satit PIM maths teachers by Iwate University students Observing Satit PIM maths classes (2 periods)
Jan 9	Lessons by Iwate University students to Satit PIM junior high school classes (7 periods)
Jan 10	Lessons (3 periods) by Iwate University students to Satit PIM junior high school classes Campus tour Cultural exchange with Business Japanese students
Jan 11	Cultural study tour
Jan 12	Cultural study tour
Jan 13	Departure from Bangkok

4. Contents of the Maths Lessons Applying CLIL

In this section, we will introduce Content and Language Integrated Teaching (CLIL) and then the maths lesson of Pair A. We will also discuss the CLIL components featured in that maths lesson.

CLIL has been attracting attention and is used across a widespread

variety of educational settings, especially in Europe (Vázquez & Ellison, 2018). As Marsh (2002) explains, “CLIL refers to situations where subjects, or parts of subjects, are taught through a foreign language with dual-focused aims, namely the learning of content, and the simultaneous learning of a foreign language” (p. 2). There are four dimensions in CLIL: culture, content, communication, and cognition (Coyle, Hood, & Marsh, 2010). These four dimensions (4Cs) form a conceptual framework, “which connects content, cognition, communication and culture. Culture and intercultural understanding lie at the core of the conceptual framework, offering the key to deeper learning and promoting social cohesion” (Coyle, Holmes, & King, 2009, p. 12). A description of the 4Cs of CLIL is shown below. We will discuss later how these dimensions were demonstrated in the lessons the student teachers prepared.

Table 3. Four Dimensions of CLIL (Coyle, Holmes, & King, 2009, p. 12)

Content	integrating content from across the curriculum through high quality language interaction
Cognition	engaging learners through creativity, higher order thinking and knowledge processing
Communication	using language to learn and mediate ideas, thoughts and values
Culture	interpreting and understanding the significance of content and language and their contribution to identity and citizenship

As discussed above, the participants were put into pairs and each pair planned a lesson. Pair A prepared a lesson utilizing material from a Japanese junior high school textbook “Gateway to the Future Math 1” (Okamoto et. al., 2013). The objective was for first-year junior high school students to find ‘the heaviest coin’ out of multiple choices using a balance scale. Each coin was put into an envelope so that the students could not see any of them. The junior high school students in each class were put into eight groups and each group was given one balance scale. Extract 1 shows the lesson plan and Extract 2

shows the worksheet for students. See Appendix 1 for the original bilingual worksheet.

Extract 1. Balance Scale Lesson Plan

Introduction (5 minutes)

1 Self-introduction of teachers

2 Play

(1) Have students realise what is going to happen by showing a play done by the teachers.

(2) Say today's goal:

"Let's find the heaviest coin using a balance scale the least number of times."

Body (35 minutes)

3 Practice 1

(1) Confirm how to use the balance scales.

(2) Have them understand how to use it by not only showing it but also letting them actually touch it.

(3) Tell students, "Let's find the heaviest coins from sets of two to four coins weighing them the least number of times. And then, let's write down the results in the worksheet".

4 Practice 2

(1) Tell students, "Let's try to do the same from sets of five coins to nine coins in groups, and write down the results in the worksheet".

(2) Everyone shares their solution.

5 Practice 3

(1) Tell students, "Let's think of a case in which one coin out of 15 is the heaviest".

(2) Solve the problem as a class.

Conclusion (10 minutes)

6 Review and closing

(1) Say, "Let's find the pattern behind these problems".

(2) Explain the following: If you have between one coin and 3, you can find the heavier coin using the balance scale once. If you have between 4 coins and 9, you can find the heavier coin using the balance scale twice. If you have between 10 coins and 27, you can find the heavier coin using the balance scale three times.

Extract 2. Worksheet

Today's Mission

Find an envelope with two coins using the balance scale.

Name: _____

Q1. Fill in the blanks with your group's idea.

Envelope	Times	How?
2	Ex. 1	Ex: Putting each envelope on each arm shows which is heavier
3		
4		
5		
6		
7		
8		
9		

Q2. If you have 10 envelopes, one of which has two coins, how many times do you need to use the balance scale to find it? Write your answer and explain how.

10		
⋮		
27		

For the student teachers, teaching maths in English not only provided an opportunity to practice CLIL in terms content and communication, but also culture. For example, they talked about the Japanese New Year custom “otoshidama” (money gift) to the Thai students. It enabled the Thai students to gain new cultural knowledge. In addition, using a balance scale as little as possible to find the heaviest coins requires cognitive skills as shown in Table 3.

5. Impact of the Programme—From the students’ comments

This section introduces comments from the post-programme questionnaire given by the student teachers. The quantitative data of all the participants is

presented in Nakamura, Ogawa, Hall, & Honda (in progress). The original questionnaire was written in Japanese. The questions and responses were translated by the first author. Appendix 2 shows the original questionnaire items and the student's responses in Japanese.

Much of the students' comments on their teaching could be linked with the four dimensions of CLIL: content, cognition, communication, and culture. Below, we show the survey questions and a representative student comment. The part related to a CLIL component is underlined with the corresponding component marked.

1. Please write freely about what you think you have learned and how you feel after teaching maths in English.

In education in Thailand, the focus was on increasing the students' motivation and interest, and they were making good use of class activities. (cognition) The classes aimed at discussing substantial mathematical issues. It was hard for both of us teachers and the Thai students to use English in classes as it is our second language. However, we learned a lot by thinking deeply in advance how to give instructions and use gestures. (communication)

2. Please write freely about what you think you have learned and how you feel after observing the maths classes taught by PIM teachers.

The classes began with an introduction followed by the main activities and conclusion. Some activities were done physically, which is rarely seen in Japan. ICT devices were being used instead of notebooks. There were many differences and I could gain a new mathematical perspective. (content)

3. Please write freely about what you think you have learned and how you feel after discussing the teaching plans with the Thai teachers and giving teaching demonstrations.

First of all, I strongly felt that the Thai teachers care about their students and their classes a lot. The activities which were different from Japanese maths education and how they prepared their lessons gave me fresh food for thought (culture). They helped us extensively before and after our demonstration lessons.

These comments reflect the significance of the programme in terms of fostering the participants' awareness and developing teaching skills in both maths and language education, and deepening intercultural understanding. The continuation of this programme is necessary to maintain the academic and intercultural relationship between Iwate University and Satit PIM.

6. Conclusion

It was only after the first author saw the student teachers' lessons and reading their comments given on the post-programme questionnaire that she realised that this programme could truly have the potential to give students the opportunity to practice CLIL and reflect on its principles. In the future, this programme can build a stronger connection between the lessons and CLIL by considering the four CLIL components: content, cognition, communication, and culture from the lesson planning stage.

References

- Byram, M. (1997). *Teaching and assessing intercultural communicative competence*: Multilingual Matters.
- Coyle, D., Holmes, B., & King, L. (2009). Towards an integrated curriculum-CLIL National Statement and Guidelines. *The Language Company*.
- Coyle, D., Hood, P., & Marsh, D. (2010). *CLIL: content and language integrated learning*. Cambridge: Cambridge University Press.
- Marsh, D. (2002). *The European Dimension: Actions, trends and foresight potential*. Public services Contract EG EAC. Strasbourg: European Commission.
- Nakamura, Y., Honda, T., Yamazaki, T., & Hall, J. (2018). Tai no PIM fuzokukou ni okeru kaigai suugaku kyouiku jisshuu no gaiyou to

- seika. [International internship program of mathematics education at Satit PIM Demonstration School]. *Suugaku Kyouiku Gakkaishi*, 59(1), 31-42.
- Nakamura, Y., Ogawa, Hall, J., & Honda, T. (in press). Tai no PIM fuzokukou ni okeru dainikai kaigai suugaku kyouiku jisshuu no seika — ankeeto chousa to kyouikujisshuu houkokusho no bunseki o tousite —. [Results of the second international internship program of mathematics education at Satit PIM Demonstration School — Through analysis of questionnaire survey and teaching practice report—]. *Suugaku Kyouiku Gakkaishi*, 20
- Okamoto, K. et al. (2016). Gateway to the Future Math 1. Osaka: Keirinkan.
- Sasajima, S. (Ed.) (2011). *CLIL atarashii hassou no jugyou [CLIL: A new kind of concept for a lesson]*. Tokyo: Sanshusha.
- Vázquez, V. P., & Ellison, M. (2018). Examining teacher roles and competences in Content and Language Integrated Learning (CLIL). *Linguarum Arena: Revista de Estudos em Didática de Línguas da Universidade do Porto*, 4, 65-78.

Appendix 1: The Original Bilingual Lesson Plan

Introduction (導入：5分)

1 Self-introduction of teachers (自己紹介)

2 Play (演示)

(1) Have students realise what is going to happen by showing a play done by the teachers.

生徒に、教師による演示を見せ、何が起きているかを理解させる (上皿天秤では、重いほうの皿が下がることを演示し理解させる)。

(2) Say today's goal (本時のねらいの提示)

“Let's find the heaviest coin using a balance scale the least number of times.”

「上皿天秤を使って、複数のコインの中から最も少ない回数で、1枚の重いコインを探そう」

Body (展開：35分)

3 Practice 1 (実践1)

(1) Confirm how to use the balance scales.

上皿天秤の使い方の確認。

(2) Have them understand how to use it by not only showing but also letting them actually touch it.

見せるだけではなく、実際に触れるようにして、使い方を理解させる。

(3) Tell students, "Let's find the heaviest coins from sets of two to four coins weighing them the least number of times. And then, let's write down the results in the worksheet".

2枚のコインの場合から4枚のコインの場合までで、最も少ない回数で、1枚の重いコインを見つけよう。そして、その結果をワークシートに記録しよう。

4 Practice 2 (実践2)

(1) Say, "Let's try to do the same from sets of five coins to nine coins in groups, and write down the results in the worksheet".

5枚のコインの場合から9枚のコインの場合までで、グループ毎に、同じように実験し、その結果をワークシートに記録しよう。

(2) Everyone shares their solution.

全員で、最も少ない回数で1枚の重いコインを見つける方法を共有する。

5 Practice 3 (実践3)

(1) Tell students, "Let's think of a case in which one coin out of 15 is the heaviest".

15枚のコインに1枚の重いコインがある場合について考えよう。

(2) Solve the problem as a class. 全員で一緒に解決。

Conclusion (終結: 10分)

6 Review and closing 振り返りとまとめ

(1) Say, "Let's find the pattern behind these problems".

これらの問題のパターンを見つけよう。

(2) Explain the following: If you have between one coin and 3, you can find the heavier coin using the balance scale once. If you have between 4 coins and 9, you can find the heavier coin using the balance scale twice. If you have between 10 coins and 27, you can find the heavier coin using the balance scale three times.

1枚から3 (= 3^1) 枚までのコインの場合は1回で、4枚から9 (= 3^2) 枚までのコインの場合は2回で、10枚から27 (= 3^3) 枚までのコインの場合は3回で、1枚の重いコインを見つけることができる。

Appendix 2: The Original Questionnaire Items and the Student's Responses in Japanese.

1. 英語で数学の授業をすることで学んだと思うことや感じたこと等を自由に書いてください。

タイの教育はアクティビティーを大切に、生徒の意欲や関心を高めることに重きを置いて（中略）数学の本質に迫る授業を目標にしていました。私たち教師側も、生徒たちも第二言語である英語で数学をしていくことはとても難しく、活動内容をいかに正確に伝えるか、言葉だけではなくボディーランゲージや説明の工夫、順序と、たくさん考えることがあり、大きな学びとなりました。

2. PIM 教師による数学の授業参観から、学んだと思うことや感じたことを自由に書いてください。

導入→活動→終結の流れでした。日本の数学教育にはない体を使った数学の活動、ノート代わりに ICT の活用等、日本と違う点がいくつもあり、自分にはなかった数学教育に対する視点を持つことができました。

3. 授業前の PIM 教師との指導案検討会や模擬授業等で、学んだと思うことや感じたこと等を自由に書いてください。

まずタイ（PIM）の先生方が生徒のことをよく考え、授業をととても大切にしていることが強く感じられました。日本の数学教育とは違った活動や、その方法に対する授業づくりの視点がとても新鮮でした。授業前後、共に私たちの授業づくりにととても熱心に協力してくださいました。

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