



สิ่งอำนวยความสะดวกและการดัดแปลงห้องเรียนภาษาอังกฤษแบบการจัดการเรียนรวม สำหรับ
นักศึกษาที่มีการได้ยินปกติและนักศึกษาที่มีความบกพร่องในการได้ยิน

Accommodation and Adaptation in Inclusive English Classrooms with
Undergraduate Students with and without Hearing Impairment

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บทคัดย่อ

บทความนี้เสนอการพัฒนาโมเดลการจัดการเรียนการสอนภาษาอังกฤษ DI & UD สำหรับห้องเรียนแบบการจัดการเรียนรวมสำหรับนักศึกษาที่มีการได้ยินปกติและที่มีความบกพร่องในการได้ยิน โมเดลนี้พัฒนาขึ้นโดยใช้การจัดบริการสิ่งอำนวยความสะดวกและการดัดแปลงตามแนวคิดการสอนตามความสามารถของผู้เรียนและการออกแบบการเรียนรู้ที่เป็นสากล

ผลการทดลองโมเดลการจัดการเรียนการสอนภาษาอังกฤษ DI & UD ในรายวิชาภาษาอังกฤษพื้นฐานที่มีการจัดการเรียนรวม ซึ่งมีนักศึกษาระดับปริญญาตรีที่มีการได้ยินปกติจำนวน 50 คนและนักศึกษาที่มีความบกพร่องในการได้ยินจำนวน 4 คน พบว่าโมเดลสามารถเสริมสร้างผลสัมฤทธิ์ทางการเรียนภาษาอังกฤษ ทักษะทางสังคม และความยืดหยุ่นผูกพันกับการเรียนของนักศึกษาทั้งสองกลุ่ม อย่างไรก็ตาม โมเดลมีผลต่อผลสัมฤทธิ์ทางการเรียนภาษาอังกฤษและความยืดหยุ่นผูกพันกับการเรียนของนักศึกษาทั้งสองกลุ่มแตกต่างกัน งานวิจัยนี้จึงเสนอแนะให้ศึกษาวิจัยเพิ่มเติมเกี่ยวกับแนวทางการให้บริการสิ่งอำนวยความสะดวกแก่นักศึกษาที่มีความบกพร่องในการได้ยิน การดัดแปลงสื่อการเรียนการสอน กิจกรรมการเรียนการสอนและการประเมินผลที่เหมาะสมกับบริบทแวดล้อมและทรัพยากรที่มีอยู่ในสถานศึกษาแต่ละแห่ง เพื่อให้สอดคล้องกับความต้องการและความสามารถสำหรับนักศึกษาทั้งสองกลุ่ม

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Abstract

This article reports the development of Differentiated Instruction and Universal Design for Learning ‘DI & UD’ English Instructional Management Model, which is an English instructional management model for inclusive classrooms with undergraduate students with and without hearing impairment. This model was developed by using the support services of accommodation and adaptation, based on Differentiated Instruction (DI) and Universal Design for Learning (UDL) approaches.

The implementation of the DI & UD English Instructional Management Model in an inclusive English classroom with fifty hearing students and four students with hearing impairment revealed that the model enhanced the English achievement, social skills, and learning engagement of both groups of students. However, the English achievement and learning engagement of the two groups were affected by the model differently. The findings suggested further research on how to provide accommodation for students with the hearing impairment and adaptation of instructional media, instructional activities, and assessment in order to design the instruction that suits the contexts and resources of each educational institution, including the needs and abilities of both groups of students.

KEYWORDS: ACCOMMODATION / ADAPTATION / INCLUSIVE ENGLISH CLASSROOMS / STUDENTS WITH HEARING IMPAIRMENT

Introduction

In the same vein as the Salamanca Statement (UNESCO, 2008), which provided the general framework for Education for All (EFA), Thailand National Education Act B.E. 2542 (A.D. 1999) stated that all Thai people must have the same educational opportunities regardless of their disability. Consequently, inclusive education has been provided around the country at both the basic education and higher education levels since B.E. 2555 (A.D. 2012) (Bureau of Special Education Administration, 2010). This study focused specifically on English instruction for undergraduate students with hearing impairment and

how to support the learning of those students and their counterparts in inclusive English classrooms since learning English as a second language was one of the challenges that students with hearing impairment often faced (Dotter, 2008).

To learn a second language, students with hearing impairment depended on the native sign language which grammar, vocabulary, and word orders may be different from the target language (Dotter, 2008). To illustrate, Thai students with hearing impairment used Thai sign language as their first language. When learning English as a second language, they accessed English materials through the interpretation from and to Thai sign language (Suthipiyapathra, Vibulphol, & Prongsantia, 2015), which had different grammar rules, vocabulary, and word orders from English (Dangsaart, Naruedomkul, Cercone, & Sirinavakul, 2007). Attaining English competence thus could be a challenge for Thai students with hearing impairment. Studies have found that many students with hearing impairment developed language skills at a slower rate than that of hearing students (Andrews, Leigh, & Weiner, 2004). In addition, other issues found in inclusive classrooms with students with hearing impairment included social skills (Luckner & Friend, 2006), and learning engagement (Richardson, Long, & Foster, 2004). Issues regarding social skills, students with hearing impairment were found to have fewer social interactions with hearing students, tended to have fewer friends, and were at risk of feeling isolated. Lastly, studies showed problems with learning engagement that students with hearing impairment lacked opportunities to participate in class activities due to the teaching pace, the number of speakers involved, and language and cultural differences.

Considering the benefits that students with hearing impairment may gain from being in inclusive classrooms (Luckner & Friend, 2006; Salend, 2008), this study aimed to develop an instructional model that supports the

learning of English in inclusive classrooms with students with and without hearing impairment by using two methods of support services—accommodation and adaptation, based on the principles of two instructional approaches: Differentiated Instruction (DI) and Universal Design for Learning (UDL).

Differentiated instruction

Differentiated Instruction (DI) describes the instructional practices that are designed to meet the needs of individual student rather than expect the students to adjust themselves to the instruction (Hall, Strangman, & Meyer, 2003; Tomlinson et al., 2003). DI is based on the assumptions that education should respond to the wide range of diverse needs of students (Gregory & Chapman, 2007). According to Tomlinson et al. (2003), DI enhanced student engagement with the task, increased academic achievement, and helped students develop a positive attitude about learning. There are many ways to differentiate instruction (Gregory & Chapman, 2007; Tomlinson et al., 2003); however, differentiated instruction through elements of the curriculum: content, process, and product helped adjust materials, teaching activities, and assessment to support the needs of students with and without disabilities in inclusive classrooms (Broderick, Mehta-Parekh, & Reid, 2010).

Universal design for learning

Universal design for learning (UDL) is an approach to design a curriculum using flexible instructional materials, activities, and assessment to ensure equal opportunities to learn for every student (Haager & Klingner, 2005; Hall et al., 2003). UDL addresses the means of representation, engagement, and expressions in various ways to enhance the participation of students with and without disabilities. The means of representation consider ways that make

the content accessible for all students to succeed in learning. The means of engagement determine the activities with considerations of learners' motivation, interests, and emotion. The means of expression emphasizes that students should have a choice on demonstrating their knowledge and skills according to the most effective modality. In this study, UDL was used in integration with DI to differentiate content, process, and product to adapt learning materials, activities, and classroom assessment to match the needs of students with and without hearing impairment in inclusive English classrooms.

Research objectives

1. To develop an English instructional management model based on differentiated instruction and universal design for learning; and
2. To investigate the effects of an English instructional management model based on differentiated instruction and universal design for learning on English learning achievement, social skills, and learning engagement of undergraduate students with and without hearing impairment in inclusive English classrooms.

Methodology

This study consisted of four phases: situation analysis, model development, model implementation, and model evaluation.

Phase I: Situation analysis

In this study, a situation analysis was conducted to seek an understanding of situations of inclusive English classrooms in Thai universities which was different from a needs analysis that only collected information about a particular problem or needs of learners (Richards, 2001). The findings of the situation analysis were used to analyze the factors in the inclusive education

contexts and make a decision about specific factors in inclusive English classrooms that were a key determinant to develop the instructional model. The situation analysis was conducted in two public universities which served the highest number of students with hearing impairment in Thailand during the time of the study (Office of the Higher Education Commission, 2012). Classroom observations and semi-structured interviews were collected from one foundation inclusive English classroom in each university. Each classroom was observed once a week for four weeks. Semi-structured interviews were conducted with two classroom teachers, two sign language interpreters, six hearing students, and six students with hearing impairment from the observed classes (Suthipiyapathra et al., 2015).

Phase II: Model development

The DI & UD English instructional management model was developed based on the findings of the situation analysis and the principles of differentiated instruction (DI) and universal design for learning (UDL) approaches. The model attempted to ‘accommodate’ the students with hearing impairment to be able to fully participate in class activities and ‘adapt’ content, process, and product to suit the needs of both groups of students (see Figure 1).

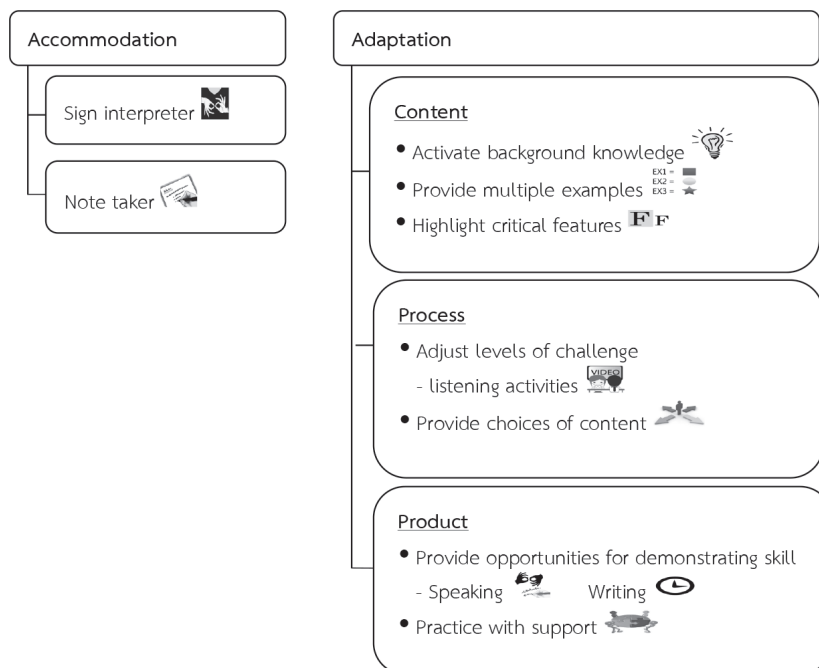


Figure 1 Accommodation and adaptation

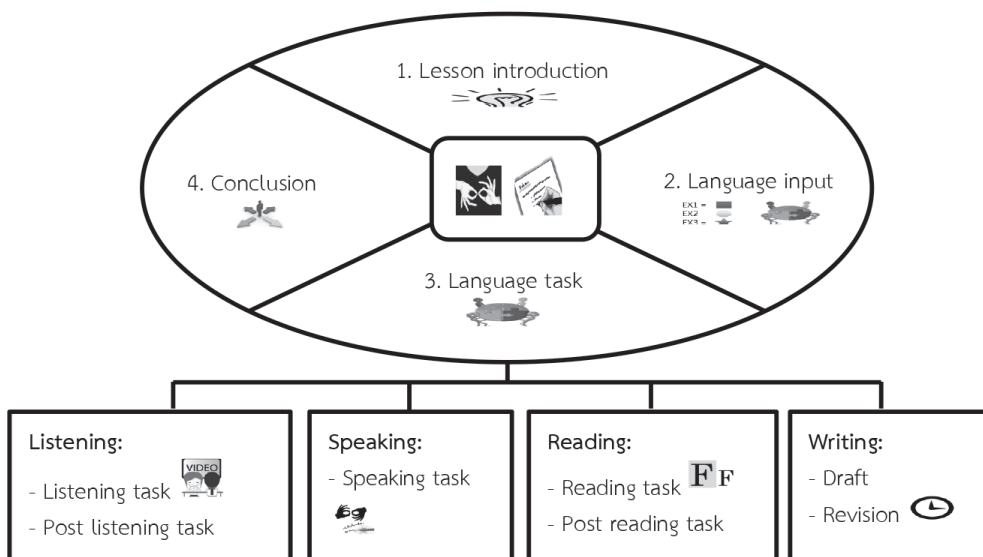


Figure 2 The DI & UD English instructional management model

As shown in Figure 2, the DI & UD English instructional management model describes the accommodation and adaptation in four steps of an English lesson: lesson introduction, language input, language task, and conclusion.

Step 1: Lesson introduction

At the beginning of each lesson, the objectives of the lesson were identified. Then to activate the students' background knowledge in each lesson, as a part of the content differentiation, with a video clip with captions on the topic related to the lesson was used.

Step 2: Language input

In the second step, the students learned the linguistics knowledge including grammar, vocabulary, pronunciation, cultures, generating ideas, or strategy to prepare for the language tasks in the lesson. In this step, two kinds of differentiation were employed: content and product. To differentiate content, multiple examples were provided when presenting the content to ensure content accessibility for all students. For product differentiation, the students practiced the learned language with support from their cooperative groups.

Step 3: Language task

Students worked on a given task focusing on one of the four skills each time. All tasks were differentiated in the aspect of product by giving opportunities for students to practice with support in a cooperative group. For the listening, reading, and writing tasks, each group consisted of one student with hearing impairment and three or four hearing students. For the speaking task, students with hearing impairment were grouped together so

that it would be convenient for them to discuss ideas and practice the role-play before performing in front of the class. In addition, each type of language task was differentiated differently as follows:

Listening task was differentiated in the aspect of process. In the listening lesson, the students with hearing impairment watched a video with captions while the hearing students turned their back to the monitor or lower their heads so that they could not see the pictures in the video and the caption and paid attention to only the audio.

Reading task was differentiated in the aspect of content. Key concepts or vocabulary in the text were highlighted with large fonts to support the reading of the students with hearing impairment while hearing students read the original version of texts.

Speaking task was differentiated in the aspect of product. The students demonstrated their skills differently based on their strengths. Hearing students performed their role-play orally in English while students with hearing impairment wrote a dialogue in English and used Thai sign language to perform the role-play and the sign interpreter interpreted for the class.

Writing task was differentiated in the aspect of product. Students with hearing impairment were given extended time to revise their drafts while hearing students revised the draft and submitted the writing task within the class period.

Step 4: Conclusion

The teacher concluded what the students have learned in the class. In addition, several websites of online self-study were provided for students to choose to work according to their preferences, as a part of process differentiation.

Phase III: Model implementation

To test the effectiveness of the DI & UD English instructional management model, a DI & UD English course was designed. A topical syllabus (Richards, 2001) under the theme “First year university students’ life” was used. The course aimed at enhancing four language skills: listening, speaking, reading, and writing. The content was organized in 12 lessons under three topics: making friends, university and town, and problems for freshmen. The DI & UD English course was implemented in one inclusive English classroom with 50 hearing students and four students with hearing impairment. The class met once a week for 150 minutes each time.

Phase IV: Model Evaluation

The DI & UD English instructional management model was evaluated using five research instruments: English achievement tests, a social skill questionnaire, a learning engagement questionnaire, learning logs, and semi-structured interviews.

1. English achievement tests

Two English achievement tests were designed as parallel tests. Each was comprised of four sections to assess listening, speaking, reading, and writing skills. Based on the concept of adaptation, each test was designed in two versions to respond to the differences in the communication ability of the two groups of the students. The two versions were differentiated in three aspects: test time, listening items, and speaking items. In terms of test time, the students with hearing impairment were given 50% extra time to complete the test. For the listening items, the hearing students listened to audio clips while the students with hearing impairment read the transcript of the text. As for the speaking tasks, while the hearing students responded to the

prompt verbally and recorded their responses, the students with hearing impairment wrote the answers instead.

The English achievement tests of both groups of students were validated by experts. Descriptive statistics including Mean, Min, Max, and Standard Deviation (SD) were applied. Paired sample t-test was used to compare the pretest and posttest scores of the hearing students. Since there were only four students with hearing impairment, non-parametric statistics: Wilcoxon was applied to compare the pretest and posttest scores of this group.

2. Social skills questionnaire

The social skills questionnaire aimed to investigate the effects of the English instructional management model on students' social skills. The questionnaire was validated by experts and piloted to ensure reliability which received Cronbach's Alpha (α) at 0.891. Mean and Standard Deviation (SD) were applied to analyze the questionnaire.

3. Learning engagement questionnaire

The learning engagement questionnaire aimed to investigate the effects of the English instructional management model on students' learning engagement which investigated three areas of engagement: behavioral, affective, and cognitive. The questionnaire was validated by experts and was piloted to ensure reliability and received Cronbach's Alpha (α) at 0.914. Mean and Standard Deviation (SD) were applied to analyze the questionnaire.

4. Learning logs

Learning logs consisting of three prompts were used to investigate students' social skills and learning engagement. The students were asked to write the log three times: before, during, and after the model implementation. The learning logs were validated by experts. Data coding and memo writing were employed to analyze the learning logs.

5. Semi-structured interview

Semi-structured interviews were used to investigate students' social skills and learning engagement. The questions were validated by experts. The interviews were conducted with four students with hearing impairment and four hearing students. For the students with hearing impairment, the questions were asked via the sign language interpreter and the sign language interpreter used Thai sign language to communicate with the students. The answers from the students with hearing impairment were then interpreted in the reverse manner. Data coding and memo writing were employed to analyze the semi-structure interview.

Results

Overall, the findings showed that the DI & UD English instructional management model had positive effects on students' English learning achievement, social skills, and learning engagement. However, the effects on the English learning achievement and learning engagement of the students with and without hearing impairment differed.

1. English learning achievement

The results showed that the DI & UD English instructional management model had different effects on English learning achievement of the two groups of students.

Table 1 English learning achievement of hearing students

Test	Pretest (N = 50)		Posttest (N = 50)		p
	M	SD	M	SD	
Listening	6.00	2.914	6.60	2.626	.172
Reading	5.20	2.740	6.64	2.371	.012*
Speaking	3.06	3.316	4.90	3.813	.001*
Writing	2.50	4.604	4.88	5.363	.000*

Note: * $p < 0.05$

Table 1 illustrates that the reading, speaking, and writing skills of the hearing students significantly improved after the implementation while the listening skill did not show significant improvement. The data shows that the hearing students could understand, apply, and analyze information they have read and were able to create their own sentences in speaking and writing. However, the hearing students could not comprehend the long entire information effectively in listening tasks.

Table 2 English learning achievement of students with hearing impairment

Tests	Ranks	N	Mean rank	Sum of ranks	<i>p</i>
Listening*	Negative	1	1.50	1.50	0.097
	Positive	3	2.83	8.50	
Reading	Negative	0	0.00	0.00	0.055
	Positive	3	2.00	6.00	
	Tie	1	-	-	
Speaking*	Negative	0	0.00	0.00	0.023*
	Positive	4	2.50	10.00	
Writing	Negative	0	0.00	0.00	0.051
	Positive	3	2.00	6.00	
	Ties	1	-	-	

Note: * $p < 0.05$

*Listening, students with hearing impairment read the audio script.

*Speaking, students with hearing impairment wrote the answers.

Table 2 explains that the speaking skill of the students with hearing impairment was significantly enhanced. The table indicates that the use of Thai sign language to perform in the class helped the students with hearing impairment improve their speaking skill. In terms of reading and writing skills, the majority of the students with hearing impairment showed the positive improvement, but the results were not significantly improved. In addition,

even though the listening skill was adjusted for the students with hearing impairment to watch the video with captions instead, they did not show significantly improvement.

2. Social skills

Overall, the results from the questionnaire, learning logs, and interviews showed that the DI & UD English instructional management model could enhance students' social skills.

Table 3 Results of social skills questionnaire

Items	Hs (N = 50)		HIs (N = 4)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Openness	3.63	.837	4.25	.802
Sharing	3.43	.799	4.00	1.057
Acceptance	3.48	.821	4.75	.359
Support	3.41	.799	3.50	1.107
Cooperative intentions	3.95	.824	4.87	.250

Note: Hs = Hearing students HIs = Students with hearing impairment

Table 3 explains that hearing students were open not only to new ideas and expressed their ideas when they worked in groups ($M = 3.63$), but they also encouraged others to do the tasks and showed their willingness to cooperate with others ($M = 3.95$). The students with hearing impairment always accepted ideas that others shared in groups ($M = 4.75$) and expressed their willingness to cooperate with others ($M = 4.87$).

In addition, the data from the learning logs and interviews found that when working in groups, hearing students tended to discuss ideas to vote for the majority and listened to others' opinions while students with hearing impairment usually accepted ideas of hearing students. Moreover, both groups of students always provided help to other group members, who

could not do their assigned responsibility, to complete a group task.

3. Learning engagement

The results from the questionnaire, learning logs, and interviews showed that the DI & UD English instructional management model could enhance students' learning engagement.

3.1 Behavioral engagement

The results from the questionnaires, learning logs, and interviews showed that the DI & UD English instructional management model enhanced students' behavioral engagement in some aspects.

Table 4 Results of behavioral engagement questionnaire

Items	Hs (N = 50)		HIs (N = 4)	
	M	SD	M	SD
Attendance	4.12	.824	4.50	1.000
Preparation	2.54	.676	1.75	.500
Attention	3.25	.665	4.00	.728
Asking questions	2.95	.799	4.37	.767
Contribution	3.72	.678	3.83	.333
Efforts	2.66	.738	4.50	.500

Note: Hs = Hearing students HIs = Students with hearing impairment

Table 4 explains that hearing students very often came to class on time (M = 4.12) and they were likely to complete homework, actively work with others both inside and outside the class (M = 3.72). However, they sometimes read books in advance to prepare themselves before the class and tended not to have conversation with the teacher when they did not understand the lesson or assignments (M = 2.54 and M = 2.66, respectively). Students with hearing impairment always attended the class and talked to the teacher when they did not understand what they had learned (M = 4.50

and $M = 4.50$, respectively); on the one hand, they rarely read learning materials and reviewed books before the class ($M = 1.75$).

The data from learning logs and interviews showed that both groups of students infrequently prepared themselves before the class. Hearing students tended to review the worksheet that they studied the prior week instead of reading the text book. Students with hearing impairment did not read the text book in advance because they did not understand what they read so that they waited for the teacher and the sign interpreter to explain.

3.2 Affective engagement

The results from the questionnaire, learning logs, and interviews showed that the DI & UD English instructional management model enhanced students' affective engagement in terms of attitude and value for hearing students while the model enhanced all aspects of affective engagement of students with hearing impairment.

Table 5 Results of affective engagement questionnaire

Items	Hs (N = 50)		HIs (N = 4)	
	M	SD	M	SD
Emotions	3.38	.786	3.91	.166
Attitudes	3.68	.753	4.35	.622
Values	3.83	.645	4.12	.750

Note: Hs = Hearing students HIs = Students with hearing impairment

Table 5 illustrates that both hearing students and students with hearing impairment agreed that class activities were interesting which helped them understand the lesson better and developed their enthusiasm to learn English ($M = 3.68$ and 4.35 , respectively). In addition, both groups of students agreed that the concepts from the class were useful for them to use for their daily

life and their future ($M = 3.83$ and 4.12 , respectively). The results of learning logs and interviews showed that videos with captions, reading materials with many examples, and role-play activities helped both groups of students better understand the lesson compared to the textbook. In addition, students stated that the course content; for example, how to manage time, how to relax, and how to keep healthy was very useful because students could use these ideas and adapt in their real life.

3.3 Cognitive engagement The results from the questionnaire, learning logs, and interviews showed that the DI & UD English instructional management model enhanced the hearing students' cognitive engagement in terms of understanding and applying while the students with hearing impairment were engaged in remembering.

Table 6 Results of cognitive engagement questionnaire

Items	Hs (N = 50)		HIs (N = 4)	
	M	SD	M	SD
Remembering	3.22	.764	5.00	.000
Understanding	3.33	.825	4.12	.750
Applying	3.25	.784	4.25	.500
Analyzing	3.16	.745	4.50	.577
Evaluating	3.20	.926	4.50	.577
Creating	2.91	.846	4.00	1.000

Note: Hs = Hearing students HIs = Students with hearing impairment

Table 6 shows that hearing students were sometimes engaged in their cognitive processing to the academic tasks. Hearing students seemed to understand how the information they had learned might be useful in the real world ($M = 3.33$), and they applied what they had learned by connecting with their own experiences ($M = 3.25$). On the other hand, students with

hearing impairment always remembered what they had learned in class in the past two weeks ($M = 5.00$). They also engaged in academic tasks by comparing the similarities and differences between things they had learned and they have known ($M = 4.50$).

The data from learning logs and interviews showed that hearing students always understood what they learned by imagining if they were in real situations. The interview supported that the hearing students often connected what they learned in class with their experiences such as what they learned in other classes, or in their part-time job. In contrast, the data from the interview disagreed with the questionnaire that students with hearing impairment could not remember what they learned in the past two weeks. They mentioned that they learned new vocabulary, but they could not remember. However, when students with hearing impairment did not know how to write words in English, they explain their ideas by drawing pictures which matched with those words instead.

Discussions

The positive effects on English learning achievement, social skills, and learning engagement suggested that the two concepts of support services: accommodation and adaptation which were provided in the DI & UD English instructional management model could be used in inclusive English classrooms with students with and without hearing impairment. The application of accommodation and adaptation in the DI & UD English instructional management model seemed to respond to the diverse needs of both groups of students effectively (Haager & Klingner, 2005; Hall et al., 2003).

1. Accommodation

The results showed that both techniques of accommodation: a sign

language interpreter and a note-taker were supportive to the students' learning and engagement. With the help of the sign language interpreter, the students with hearing impairment were able to communicate with the teacher and classmates and participate in class activities more (Cawthon, 2011; Powell, Hyde, & Punch, 2014). The sign language interpreter helped explain the ideas to the students with hearing impairment or asked the teacher for them when they did not understand the reading materials, or could not follow the instruction. Slightly differently, the note taking was found to be helpful for the students with hearing impairment to follow up the ideas after the class.

2. Adaptation

The content, process, and product were differentiated to adapt materials, activities, and assessment to respond to the needs of the students. The results showed that the adaptation was supportive to the students' learning, social skills, and engagement.

2.1 Adapting content

The content was differentiated to adapt materials by activating background knowledge, highlighting critical features, and providing multiple examples. First, a video with captions was very helpful to activate students' background knowledge and engaged the students in learning. Both groups of the students could read the caption and see the interaction in the video to help them gain comprehension of what they were about to learn in the lesson, and made the class activities more interesting (Salend, 2008). Second, highlighting critical features enhanced learning engagement of the students with hearing impairment. They could notice the important points of the lesson and applied the highlighted information to better understand the reading materials (Hall et al., 2003; Salend, 2008). Finally, multiple examples engaged both groups of the students in learning. The students used the

provided examples to access to the learning content which enabled the students to understand what they had learned and felt better participating in the classroom.

2.2 Adapting process

The process was differentiated to adapt classroom activities by adjusting levels of challenge and providing choices of content. To adjust levels of challenges, the adaptation of the listening activity was found to be meaningful for the students with hearing impairment (Suthipiyapathra et al., 2015). The students with hearing impairment could read the captions and see the interaction while looking at the video which helped them gain comprehension and engaged them in the listening activity. The online self-study was useful for both groups of the students because they had choices to practice exercises according to their preferences which motivated them to continue studying on their own (Salend, 2008).

2.3 Adapting product

The product was differentiated to adapt classroom assessment by providing opportunities for students to demonstrate speaking and writing skills through the most effective modality and providing opportunities to practice with support. To demonstrate the speaking skill, the students with hearing impairment could better express their ideas and feelings using Thai sign language. Providing extended time was an effective technique to assess the writing skill for the students with hearing impairment (Cawthon, 2011; Powell et al., 2014) because the students had more time to think about new vocabulary and create long sentences which engaged the students in writing. To practice with support, the hearing students had opportunities to work with the students with hearing impairment which helped both groups of the students develop positive relationships, learned from each other, and accept

individual differences (Salend, 2008). However, placing the students with hearing impairment in the same group with the hearing peers sometimes led to communication difficulty when they could not communicate effectively with hearing peers.

Pedagogical implications

Since the results showed that the students with hearing impairment did not improve their reading skills significantly. This may be due to the fact that they were given special support, i.e. highlighted critical features, during the reading lesson without having a chance to read any texts in the regular presentation as in the exam situation. Therefore, the model may be adjusted by a gradual reduction of the highlight in the reading lessons overtime.

Recommendations for further research

In the natural classroom settings, not all types of accommodation and adaptation may be available. Further research can be conducted to investigate the effectiveness of each technique of accommodation and adaptation in the DI & UD English instructional management model. By determining which technique of accommodation and adaptation is the most effective or prevalent, English educators will be able to design the instruction that is appropriate for their local contexts and resources.

Finally, the DI & UD English instructional management model was developed to address the learning differences in inclusive English classrooms with students with hearing impairment specifically. Further research may be conducted to develop an English instructional management model for other types of students with disabilities.

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