Analysis of Taiwanese elementary school English teachers’ perceptions of, designs of, and knowledge constructed about differentiated instruction in content

Chin-Wen Chien

Abstract: This study analyzed Taiwanese elementary school English teachers’ perceptions of, designs on, and knowledge constructed about, differentiated instruction in content in an intensive summer course. Based on the data analysis of surveys, the document, videos, and an interview, the study had the following findings. First, before the intensive summer course, although they thought highly of differentiated instruction, they used the same textbook and did not implement differentiated instruction in their classroom practice. Their reluctance resulted from their lack of competence in differentiated instruction, time, and opportunities on collaborative planning. Secondly, throughout the intensive summer course, only three teachers differentiated their instruction in content by integration of jigsaw reading and supplementary materials. Finally, their knowledge constructed on differentiated instruction mainly came from the instructor of the intensive summer course and online resources. Three suggestions are provided to help elementary school English teachers effectively implement differentiated instruction in content in their classroom practice.

Subjects: Education; Humanities; Language & Literature

Keywords: competence; content; differentiated instruction; jigsaw reading; perception; Taiwanese English teachers

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PUBLIC INTEREST STATEMENT

One size does not fit all. Differentiated instruction is a reasonable alternative for teachers to meet diverse learners’ needs and intelligence. Current empirical studies focus on implementation of differentiated instruction in English education, particularly in process and product. No empirical studies focus on English teachers’ differentiated content. This study analyzed Taiwanese elementary school English teachers’ perceptions of differentiated instruction in content in an intensive summer course. Readers who are interested about differentiated instruction and instructional strategies will benefit from this article. Suggestions are also provided to help elementary school English teachers effectively implement differentiated instruction in content in their classroom practice.
1. Introduction

Elementary school English teachers in Taiwan struggle to meet the needs of learners who have different learning styles, English proficiency levels, and aptitude. The majority of them rely on peer assistance classroom management strategies, such as asking the higher achievers to help the lower achievers, rather than on modifying their curriculum to meet their learners' needs (Chan, 2008; Chiu, 2008; Hsu, 2009; Liu, 2008). Effective teachers realize that diversity may affect learners' learning and can work toward creating classroom settings that value it (Tileston, 2004). Therefore, differentiated instruction is a reasonable alternative to solve the problem (Pettig, 2000).

However, not all teachers know how to differentiate their instruction. English teachers lack competence to differentiate instruction for a range of learners in mixed-level English classes (Dee, 2011; Holloway, 2000; Ruys, Defruyt, Rots, & Aelterman, 2013; Scott & Spencer, 2006; Tomlinson, 1999b). Teachers with competence in differentiated instruction can become more adept at planning instruction to meet learners' readiness levels (Dahlman, Hoffman, & Brauhn, 2008). English teachers employ tiered assignments, choice boards, and Question–Answer Relationship (QAR) to differentiate instruction in terms of process and product (Chen, 2007; Chen et al., 2014; Chien, 2012, 2013a, 2013b, 2015a, 2015b; Kao, 2014).

There are books about how to implement differentiated instruction in language classroom (i.e. Blaz, 2006; King-Shaver & Hunter, 2003). However, no empirical studies focus on English teachers’ implementation of differentiated content in Taiwan EFL setting. This study analyzes elementary school English teachers’ perceptions of and designs on differentiation of instruction in content. These elementary school English teachers attended an intensive training course in a teacher education program in a northwest university in Taiwan. This study discusses the following issues. First, what were the elementary school English teachers’ perceptions of differentiated instruction in content before and after the intensive training? Secondly, how did the elementary school English teachers differentiate their English instruction in content? Third, how did these English teachers construct their knowledge and competences in differentiated instruction in content? Suggestions on effectively differentiating instruction in elementary school EFL classrooms are provided.

2. Literature review

In the literature review, several issues are discussed in terms of definitions of differentiated instruction, content, ways of differentiated instruction in content, empirical studies on differentiated instruction in content in EFL setting, and conceptual framework. Blaz (2006, p. 1) defines differentiated instruction: “The standards and curriculum tell us what students need to know and differentiated-instruction techniques help us get them there while we teach them how to learn”. Renzulli and Reis (1997) identify five important dimensions of differentiation, including content, process, product, classroom, and teacher. Kryza, Duncan, and Stephens (2010, pp. 12–13) call for five elements to differentiate in terms of chunk (new information is presented to the learner), chew (the learner has to make sense of the information), check (the teacher checks if the learner has processed the information), environment (tone and setting of the classroom), and content (what we teach). According to Tomlinson (1999a), teachers differentiate their instruction in terms of content, process, and product based on learners’ readiness, interests, and profiles, as in Figure 1.

Content is the input of the unit (Theisen, 2002). Content is defined as “what is to be taught, what level of understanding, knowledge, and proficiency students are to demonstrate, and what context, materials, and differentiation are necessary to allow all students a point of entry to learning” (Thousand, Villa, & Nevin, 2007, p. 66). The purpose of differentiated content is to enrich the curriculum through focusing on curriculum concepts and structuring knowledge in an exciting way (Renzulli & Reis, 1997).

Teachers can use three essential questions for determining the content: (1) What are the most important concepts in my course or subject area? (2) What is essential for my students to know and understand? (3) What concepts or ideas do we continue to refer to as we move through this
curriculum? (Heacox, 2002, p. 54). Teachers must evaluate the curriculum and ensure that tasks and objectives are aligned to the learning goals (Hall, 2009; Pettig, 2000; Rock, Gregg, Ellis, & Goble, 2008). Moreover, the instruction is concept focused and principle driven (Hall, 2009; Pettig, 2000). The lesson planning can be divided into three stages. First, teachers must identify the desired results. Next, teachers determine acceptable evidence. Finally, teachers plan learning experiences and instruction (Tomlinson & McTighe, 2006).
Nordlund (2003) divides three levels of differentiated instruction in content in terms of challenged (three crucial points key concepts), average (all aspects of the topic), and gifted (in-depth study). As revealed in Table 1, Giangreco, Cloninger, and Iverson (1993) propose four levels of participation in the content, including same, multilevel, curriculum overlapping and alternative.

Before designing the content for the learners, teachers can first use a pretest to determine learners’ prior knowledge and readiness (Chapman & King, 2005, 2008; Gregory, 2007; Heacox, 2002; Langa & Yost, 2007; Pettig, 2000). Teachers can differentiate the content by using a variety of texts (i.e. simple or advanced, electronic or printed) (Blaz, 2006; Gregory, 2007; Heacox, 2002; Kryza et al., 2010). Provisions by teachers of rich source materials can help learners get access to meaningful texts (Onosko & Jorgensen, 1997). Teachers can also differentiate content by giving learners different types of instruction from direct instruction, concrete examples, worksheet practice, or complex activities (Blaz, 2006; Gregory, 2007; Langa & Yost, 2007). Take writing as an example. Chapman and King (2009) suggest teachers could differentiate content in writing as follows:

1. Break informational text writing assignments and materials into smaller chunks.
2. Use simpler or more complex content vocabulary as needed.
3. Tune into the learner’s modalities to plan writing experiences with content information.
4. Provide reference materials for writing at the student’s reading level.
5. Vary the genres in activities and assignments.
6. Plan content area writing assignments according to the student’s needs, as revealed in the assessment data (p. 2).

While some of the studies explore English teachers’ attitudes toward implementation of differentiated instruction and beliefs on differentiated instruction (Driskill, 2010; Létalová & Collins, 2008; Wang, 2012), other empirical studies focus on implementation of differentiated instruction in English education in terms of content, process, and product, as in Table 2. The majority of the English teachers differentiated their instruction in terms of process and product, such as flexible grouping (Sun, 2015; Yeh, 2012) or tiered assignments (Alavinia & Sadeghi, 2013; Chen, 2007; Chen et al., 2014; Chien, 2015a, 2015b; Lin, 2014; Tu, 2012). Sun (2015) and Yeh (2012) employed student team achievement for cooperative learning as a differentiated process.

Kao (2014) employed multi-assessments as differentiated products among 30 Taiwanese seventh-graders in English classes and the learners’ attitudes shifted from being negative to positive toward English learning. In addition to multi-assessments as differentiated products, Chen et al. (2014) employed tiered assignments to help 18 fourth-graders’ vocabulary learning in word form and meaning. A total of 60 male and female undergraduate EFL freshmen studying at Urmia University in Alavinia and Sadeghi’s study received the same material, Touchstone (Video Resource Book 3), but they received different tasks based on their learning styles (visual, auditory, or kinesthetic).

Table 1. Levels of participation in the content (Giangreco et al., 1993)

<table>
<thead>
<tr>
<th>Level of participation</th>
<th>Descriptions</th>
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<tbody>
<tr>
<td>Same</td>
<td>Access to basically the same content as other students in the class, perhaps with minor modifications</td>
</tr>
<tr>
<td>Multilevel</td>
<td>Students are involved in the same curriculum area but pursue different objectives at multiple levels based on their individual needs</td>
</tr>
<tr>
<td>Curriculum overlapping</td>
<td>Students are engaged in the same lesson but pursue goals from different curricular areas</td>
</tr>
<tr>
<td>Alternative</td>
<td>Students work on goals unrelated to what their classmates are pursuing</td>
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One of the biggest challenges for the language teachers in differentiating instruction is insufficient resources (Kao, 2014; Reese, 2011). Not many language teachers differentiate their instruction in terms of content. Ms Smith in Ankrum’s (2006) study differentiated content by choosing the appropriate level books based on the learners’ reading proficiency levels (i.e. high, average, low), type of the level books (i.e. fiction, information book), and reading instructional focus (i.e. making connections, character traits). The English teacher in Chien’s (2012) study differentiated English instruction in content, process, and product. She first used Spotlight Vocabulary as the pre-assessment to figure out the learners’ word knowledge. She gave sixth-graders different riddles based on their English proficiency levels. She differentiated the process by giving lower achievers additional instruction on vocabulary. The objectives and content of the assessments were different for beginning and advanced learners. While the beginning-level learners were asked to recognize the words, the advanced levels were asked to recognize and spell words. In addition, learners were given three choices on word and sentence exercises, such as “pair spelling quiz,” “word concentration game,” and “making word card.”

Based on Tomlinson’s (1999a) differentiation of instruction, teachers can differentiate their instruction in terms of content, process, and product according to learners’ readiness, interests, and learning profiles as in Figure 1. The content refers to what the student needs to learn or how the student will get access to the information. Teachers can differentiate their process by providing learners with activities in which the student engages in order to make sense of or master the content. In differentiated products, students are encouraged to rehearse, apply, and extend what he or she has learned in a unit. Based on Tomlinson’s (1999a) Differentiation of Instruction in Figure 1 and other relevant studies, the conceptual framework of this study is revealed in Figure 2. Based on the standards mandated by the Ministry of Education (2015) and objectives of each lesson in the textbooks, a pre-assessment is designed to assess learners’ readiness. The results of the pre-assessments, standards, objectives, and the intensive summer course influence English teachers’ beliefs and knowledge in designing differentiated instruction in content in terms of varying organizers, texts, or supplementary

<table>
<thead>
<tr>
<th>Studies</th>
<th>Instructional strategies</th>
<th>Differentiated instruction</th>
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<tbody>
<tr>
<td>Alavinia and Sadeghi (2013)</td>
<td>Differentiated tasks</td>
<td>Products</td>
</tr>
<tr>
<td>Chen (2007)</td>
<td>Tiered performance tasks</td>
<td>Product</td>
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<tr>
<td>Chen (2011)</td>
<td>Differentiated group</td>
<td>Process</td>
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<tr>
<td>Chen et al. (2014)</td>
<td>Tiered assignments</td>
<td>Products</td>
</tr>
<tr>
<td>Chien (2012)</td>
<td>Varied texts, pull-out instruction, tiered assignments</td>
<td>Content, process, product</td>
</tr>
<tr>
<td>Chien (2013a)</td>
<td>Choice board</td>
<td>Process, product</td>
</tr>
<tr>
<td>Chien (2013b)</td>
<td>QAR strategies</td>
<td>Product</td>
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<tr>
<td>Chien (2015a)</td>
<td>Tiered assignments</td>
<td>Product</td>
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<tr>
<td>Chien (2015b)</td>
<td>Tiered assignments</td>
<td>Product</td>
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<tr>
<td>Huang (2014)</td>
<td>Tiered tasks</td>
<td>Process, products</td>
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<tr>
<td>Jhuang (2013)</td>
<td>Tiered assignments</td>
<td>Process, products</td>
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<td>Kao (2014)</td>
<td>Multi-assessment</td>
<td>Product</td>
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<td>Lin (2014)</td>
<td>Multiple assessments</td>
<td>Product</td>
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<td>Sun (2015)</td>
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<td>Tu (2012)</td>
<td>Mixed-level tasks</td>
<td>Products</td>
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<td>Tsia (2015)</td>
<td>Student teams achievement divisions</td>
<td>Process</td>
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This study explores Taiwanese elementary school English teachers' perception of, designs of, and knowledge constructed about, differentiated instruction in content.

3. Method

A case study must have data from multiple sources and examine something in a real-life context (Yin, 2013). First, the multiple sources including the survey, the document, videos, and an interview were collected as data. Second, case study is employed in this study in order to examine English teachers' differentiated content in the EFL context. The unit of analysis was English teachers' beliefs and knowledge of differentiated content.

3.1. Participants and setting

The participants in this study included 33 elementary school English teachers enrolled in a intensive summer course, English Reading and Writing Instruction, one of the required courses for an English teacher endorsement program offered by a northwest university in Taiwan. The objectives of the course was to help elementary school English teachers identify the principles of teaching and learning reading and writing to learners at all levels of proficiency, have hands-on experience on useful teaching techniques, be familiar with guidelines for testing and monitoring learners' reading and writing skills and fluency, design reading and writing activities and integrate differentiated instruction into the instructional activities. These teachers were required to complete three assignments including in-class tasks, digital observations, as well as activity designs and demonstration. First, they had to complete all different types of tasks in class (i.e. brainstorm elements of reading instruction, jigsaw reading). Second, as for the digital observations, they had to observe an experienced English teacher's instruction via videos or online resources, describe the teaching procedure, Wows, and Wonders of that teacher's instruction. With regard to activity designs and demonstration, these teachers were asked to choose one topic (e.g. food, weather, animal), design one lesson on reading and writing activities for learners at three levels (low, intermediate, and high), explain their rationale on activity designs, and demonstrate these activities in class.

Based on the preliminary analysis of the 33 lesson plans and activity designs, the majority of the teachers differentiated their instruction through tiered assignments \((n = 20)\), followed by learning stations \((n = 10)\). Four teachers did not include differentiated instruction in their lesson plans. Only three teachers differentiated their instruction in terms of content. The researcher asked these three English teachers' willingness to take part in this study and they expressed their interest in this study. The researcher gave each of them an informed consent form and explained the full knowledge of the risks and benefits of the study and how they could participate in this study. Therefore, this case study mainly focuses on these three teachers' perceptions of and designs on differentiated instruction in content.
The three female participants, Wendy, Lily, and Helen (pseudonyms), had only three years of English teaching experience. English teachers in Taiwan must meet one of the following four criteria: (1) have passed the Ministry of Education’s 1999 Elementary School English Teacher’s Qualification Exam, (2) have a university degree with a major or minor in English, (3) be proficient in English at or above upper intermediate level in terms of the Common European Framework of Reference for Languages, and (4) have taken an elementary school English teacher 20-credit course. While Wendy and Lily met criteria 2, Helen met criteria 3.

3.2. Data collection

Data in this study included both qualitative and quantitative data. Data included the survey, the document, videos, and an interview. The first data source was Whipple’s (2012) survey, “Understanding and Implementation of Differentiated Instruction.” The survey was used to answer the first research question, “What was the elementary school English teachers’ attitude toward differentiation of instruction in content before the intensive course?” The survey had 26 statements with a 4-point scale from “1, not important” to “4, very important.” The survey was divided into six categories, including student interest, assessment, lesson planning, content, process, and product. Five statements were written under assessment and lesson planning and the rest had only four statements. The researcher prepared a pilot version of the questionnaire and tested it on a sample of seven elementary school English teachers. Based on their responses and comments, the researcher prepared the finalized version of the questionnaire. Its reliability was tested by the Cronbach coefficient alpha as .857.

Document included lesson plans, teaching aids, notes, and photos taken during the intensive summer course English Reading and Writing Instruction. Participants were asked to design a 40-min lesson plan based on the English textbooks or supplementary materials used in participants’ elementary schools. They were asked to differentiate the content based on their learners’ English proficiency levels, cognitive development, and readiness. On the last day of the intensive course, they were asked to reflect on their teaching demonstration and revise their lesson based on the comments given by the peers and the instructor.

They were asked to give a 10-min teaching demonstration that was to be videotaped. The instructor and the rest of the participants gave them comments on the teaching demonstration and lesson plan. In addition to videoing the teaching demonstration, the instructor’s lecture and instructional strategies on differentiated instruction were all videotaped for analysis. The document and videos were used to answer the second and third research questions, “How did the elementary school English teachers differentiate their English instruction in content?” and “How did these English teachers construct their knowledge and competence in differentiated instruction in content?”

The semi-structured interview was employed in this study. Each participant was interviewed for 30 min at the end of the course. Interview data were used to answer the third research question, “How did these English teachers construct their knowledge and competence in differentiated instruction in content?” Participants were asked questions regarding the rationale of designing differentiated content and sources of knowledge, such as “Why did you differentiate your content this way?” or “What helped you design your lesson for differentiation?”

3.3. Data analysis

The videos and audiorecorded interviews were transcribed word for word into a Word document. Thematic analysis was used to explore the research questions (Flick, 2009). Data were analyzed in the following stages. First, the researcher read the data, searched for themes and patterns, and gave tentative codes such as difficulty, text, and major concepts, as in Figure 3. Next, the codes were labeled to relevant themes, such as valued or reluctant. Finally, based on the research questions and the relationship between the themes, new codes were developed, such as perception and attitude, designs of lesson plans, and sources of knowledge.
For triangulation, the researcher conducted a cross-analysis of the relevance and importance of the themes and issues and took different data sources as referents (i.e. interview, lesson plans, surveys, document). To ensure the internal validity, member checking was employed. The researcher sent the preliminary analysis back to the participants and asked them whether the interpretations were accurate. Moreover, the researcher also gave the preliminary analysis to two colleagues who are also in the field of language teacher education for peer examination. These colleagues scanned some of the raw data and assessed whether the analyses were plausible based on the data.

4. Results and analysis
Based on the data analysis, the results are discussed in three issues in terms of perceptions of the differentiated instruction, designs of differentiated content in lesson plan, and knowledge constructed about differentiated instruction.

4.1. English teachers' perceptions of the differentiated content
Before the English Reading and Writing Instruction course, of the four statements on differentiated content in the survey, none of the participants chose “not important.” They also chose “important” or “fairly important” for the following three statements: “The curriculum is based on major concepts and generalizations,” “I clearly articulate what I want students to know, understand, and be able to do,” and “I provide a variety of support strategies.” However, two teachers chose “somewhat important” to the statement “I use a variety of materials other than the standard text” as “important” and “fairly important.”

With regard to their perceptions on lesson planning, these three teachers also agreed about the statements, “I teach by assuring each student works towards their highest potential,” “I adjust for diverse learners’ need with scaffolding, tiering instruction and provide student choice in learning activities,” and “I provide tasks that require students to apply and extend understanding.” However, Lily regarded “Learners play a role in designing/selecting learning activities” as “not important.” In this study, participants' perceptions on differentiated instruction in lesson planning were similar to fourth-grader general education teachers’ in differentiated instruction in reading instruction in New York (Driskill, 2010). To teachers, differentiated instruction involves tailoring instruction to meet learners’ needs through providing different assignments to different groups of learners, using different levels of books to teach the same concepts or topics.

Although these participants highly identified the importance of differentiated content, they did not put the concept into their daily classroom practice. None of the participants differentiated their instruction by using major concepts and generalizations. The reason why they did not differentiate instruction by using major concepts was “lack of competence in differentiated instruction.” Wendy
wrote, “I know the importance of differentiated instruction, but I did not know how to do it.” Helen wrote, “I think it’s too difficult for me to do lesson planning on differentiated instruction alone. I don’t have colleagues to do lesson planning with me.” Lily also wrote, “I know I have a mixed-level class, but I don’t know how to differentiate the content for them.”

The findings of this study were in accord with Whipple’s (2012) study. There was a lower rate of teachers’ implementation of differentiated instruction compared to the understanding. Moreover, in this study, teachers’ reluctance to implement differentiated instruction in content resulted from teachers lacking competence and planning time. Such findings were in concurrence with current studies. Knowledge and experience were regarded as the top factor to facilitate the implementation of differentiated instruction. Availability of materials and amount of planning time were viewed as both factors and hindrances to the implementation of differentiated instruction (McLean, 2010; Rodrigue, 2012).

These teachers used the same material to teach the whole class. In addition to the standard texts, they did not use a variety of materials other than standard texts (i.e. jigsaws, varied organizers, texts) for differentiated instruction because they were under pressure to finish teaching the textbook. Moreover, Wendy wrote, “I use the same material, because it is easier to do lesson preparation. I feel sorry for my low and high achievers.” Lily and Helen also wrote, “I use the same material, because students have to learn the basic knowledge.” Although English teachers in this study knew that they were supposed to differentiate instruction in order to anticipate the differences among their students, in reality, the adaption of textbooks along with varied texts to meet learners’ diverse learning styles, intelligence, proficiency levels, or cognitive development often takes place with difficulties and challenges (Ruys et al., 2013).

4.2. Designs of differentiated content
Based on the analysis of the lesson plan and videos, the majority of the teachers differentiated their instruction through tiered assignments \((n = 20)\), followed by learning stations \((n = 10)\). Four teachers did not include differentiated instruction in their lesson plans. Only three teachers differentiated their instruction in terms of content. While two teachers provided their advanced learners with supplementary materials, one teacher did jigsaw reading. The empirical studies on English teachers’ implementation of differentiated instruction revealed that the top two strategies employed were in process and product, such as flexible grouping and tiered assignments, rather than on content (i.e. Alavinia & Sadeghi, 2013; Chen, 2007). But interestingly, the most common differentiated instructional strategies used by elementary school teachers in Rodrigue’s (2012) study was content, such as varied questions and varied materials.

Wendy designed a lesson on location (i.e. post office, supermarket). In addition to tiered assignments on word exercises on Crossword and Word Search, she provided the advanced learners with supplementary reading material as in Figure 4. She also designed five questions for the reading comprehension, such as “Where do you see an exhibit?”

Blaz (2006) suggests that teachers can differentiate the content by using a variety of texts (i.e. simple or advanced, electronic or print-text types, authentic or simplified). In this study, Wendy provided a short article as the supplementary material for advanced learners. Language teachers can use their competence to adapt or use supplementary materials in order to create appropriate, learning-rich, and interesting activities to cater to learners’ needs (Ur, 2012).

Helen’s lesson plan focused on Monster. In addition to the tiered assignments on Unscrambled Sentences, Missing Monster Notice, and Finding Monsters, she provided the Go Away, Big Green Monster picture book as the supplementary reading for her advanced learners. Learners were required to compare and contrast the features of the monsters in the Missing Monster Notice worksheet and Go Away, Big Green Monster picture book. Readers can comprehend better if they can make three kinds of connections, including text-to-self, text-to-text, and text-to-world (Keene &
Zimmerman, 1997). Helen, in this study, planned to help her learners make connections between Missing Monster Notice and another picture book. That is “text-to-text,” connecting big ideas and themes across texts (Harvey & Goudvis, 2000). Such connections remind readers of other books they have read. They can compare and contrast the texts in terms of genre, text structure, topic, theme, plot, character, fact, or opinion. In Helen’s lesson designs, learners were required to compare the features of the monsters.

Lily designed jigsaw reading activities for her learners as in Figure 5. She wrote in her lesson plan as follows:

Team Discussion Jigsaw—team members are divided into 1, 2, 3 and 4. Student 1 from each group needs to discuss question 1. Students 2, 3, 4 do the same. After 5 min, students go back to their team and share their answers. Check the answer with whole class.

While student 1 circles the transportation in the story, student 2 classifies these transportation words into two categories, “words we know” and “new words.” Student 3 sorts these transportation words based on their speed and student 4 circles the transportation words and writes them down in both Chinese and English.

In this study, Lily designed the jigsaw reading activity for her learners to cover large portions of the vocabulary and text on transportation in a short period of time. Learners benefit from such cooperative learning tasks (Kazemi, 2012; Qiao & Jin, 2010). Moreover, teachers can assign a portion of the
text to one particular learner based on his or her language proficiency level. Learners can become experts on one portion of the text and share their experiences with other learners in a small group.

4.3. Knowledge constructed about differentiated content

When being asked “What helped you design your differentiated instruction?”, these three participants answered, “The summer intensive class and the instructor.” In addition to their learning from the summer class, participants thought that online resources helped them design their differentiated instruction. Wendy said, “I watched Cindy’s video on differentiated reading instruction for
young EFL learners.” Wendy further explained, “Cindy also used a variety of activities, i.e. guessing, circle or cross, writing action words, jigsaw activity, making sentences, watching the video, and reading aloud (echo reading and choral reading).”

Teachers can develop professional knowledge through different activities that can help teachers such as micro-teaching, observation, simulation, and role-play (Day, 1991). Lortie (1975) claims that the apprenticeship of observation can help novice teachers bridge the gap between educational theory and practice. Loughran (2006) further explains,

Student teachers have observed teaching for a considerable period of time and have formulated views about what teaching is like and how it is done. It is therefore not difficult to see how their understanding of teaching may well be caught up in a search for the familiar routines, and strategies that they have experienced as students. (p. 105)

Moreover, the instructor of the intensive summer course demonstrated instructional strategies on differentiated instruction. Helen said, “The instructor taught us both the theoretical concepts and instructional practice of differentiated instruction. I particularly liked different types of graphic organizers, station teaching, and jigsaw reading.” Figure 6 was an example of station teaching demonstrated and practiced in the intensive summer course English Reading and Writing Instruction.

Lily also wrote, “This class helped me learn more ideas in differentiated instruction. The instructor discussed the lesson with me and improved my lesson plan. I wish I have someone to do lesson preparation with me like her.” Below is the discussion between Lily and the instructor about jigsaw reading. The instructor identified the unclear instruction on the worksheet.

**Example: Discussion Between the Instructor and Lily**

The instructor: After telling the story *This is the Way We Go to School*, you plan to use jigsaw reading.

Lily: Yes.

The instructor: For student 2, classification is not clear. Do you intend to ask your students to make a list of words related to transportation or any word from the book?

Lily: I did not make it clear here. I mean words related to transportation.

In this study, the instructor helped Lily plan the lesson. Language teachers can work collaboratively on lesson planning in a similar format to the Japan lesson study. Teachers first identify goals for a lesson they want to work on together and spend time collaboratively discussing and designing lessons which they then teach while others observe. Teachers can next meet to discuss their observations and ideas on how to improve the lesson (Wiburg & Brown, 2007; Zepeda, 2008).

**5. Discussion**

This study analyzed three elementary school English teachers’ perceptions of, designs of, and knowledge constructed about, differentiated instruction in content in an intensive summer course.
on the data analysis of surveys, the document, videos, and an interview, the study had the following findings. First, the participants regarded differentiated instruction in content as important. Although they thought highly of differentiated instruction, they used the same textbook and did not implement differentiated instruction in their classroom practice. Their reluctance resulted from their lack of competence in differentiated instruction, time, and opportunities on collaborative planning. Secondly, only three teachers differentiated their instruction in content by integration of jigsaw reading and supplementary materials. Third, their knowledge constructed on differentiated instruction mainly came from the instructor of the intensive summer course and online resources. In order to help elementary school English teachers effectively implement differentiated instruction in content in their classroom practice, three issues are discussed in terms of integration of differentiated instruction into English teachers’ professional development, elements of differentiated instruction in content, and importance of collaborative planning.

5.1. Integration of differentiated instruction into English teachers’ professional development
In this study, participants lacked sufficient competence and knowledge in differentiated instruction in content. Novice teachers often experience difficulties in putting differentiation into their own classroom practice (Burton, 2003; Holloway, 2000; Ruys et al., 2013). Differentiated instruction is strongly recommended to be included into elementary school English teachers’ professional development. Training and professional development help teachers better prepare to differentiate their instruction, materials, and assessments that are especially appropriate for different learners (Drame & Xu, 2008; McLean, 2010). Teacher trainers or educators should model the differentiated instruction in content in an intentional way. Observing an experienced teacher’s or teacher trainer’s classroom practice on differentiated instruction is a way for English teachers to reflect and examine their own practices and make changes they deem fit (Whipple, 2012). Most importantly, Swennen, Korthagen, and Lunenberg (2004) suggest that the teacher educators can legitimize their pedagogical choices by linking them to and underpinning them with theoretical notions.

5.2. Elements of differentiated instruction in content
Language teachers must be equipped with the theoretical knowledge and instructional strategies on differentiated instruction in content in terms of aptitude, jigsaw, taped material, anchor activities, varying organization, varied texts, varied supplementary materials, or literature circle, as proposed by Tomlinson (1999a) in Figure 1. Language teachers must create learning environments that support differentiated instruction. They must be aware of the relationship between themselves, learners, and content, as in Figure 7.

5.3. Importance of collaborative planning
In this study, Lily had the opportunity to have support from the instructor for collaborative planning. Language teachers can benefit from collaborative planning because they can think creatively and brainstorm techniques and instructional strategies for organizing the teaching procedure (Clark & Peterson, 1986). Fernández (2010) suggests that teachers can work collaboratively on lesson planning through meaningful discussion, planning, and practice with support from a knowledgeable teacher educator. Later on, they can analyze and revise their lessons again and again. Language teachers can adopt Japan’s lesson study cycle (Dumitrascu & Horak, 2008; Fernández, 2010; Honigsfeld & Cohan, 2006; Lee, 2008). Hence, language teachers are encouraged to collaboratively design and investigate a differentiated instruction in content to meet a specified overarching student learning goal.

Figure 7. Artful teaching.
6. Conclusion
This study analyzed three Taiwanese elementary school English teachers’ perceptions of, designs of, and knowledge constructed about, differentiated instruction in content. Based on the data analysis, the study had the following major findings. First, the participants regarded differentiated instruction as important; however, their lack of competence, time, and collaborative lesson planning resulted in no implementation of differentiated instruction in content in their daily classroom practices. Secondly, they differentiated instruction in content through jigsaw reading and provision of supplementary materials, but not in varied graphic organizers, anchor activities, varied texts, or literature circles. Third, the theories, modeling, and collaborative planning provided by the instructor of the intensive summer course helped participants construct their knowledge and competence in differentiated instruction in content. Three suggestions are provided in order to help elementary school English teachers implement differentiated content in terms of integration of differentiated instruction into teachers’ professional development, elements of differentiated content, and collaborative planning.

This study discusses the results of a small-scale case study of three elementary school English teachers’ perception of, designs of, and knowledge constructed about, differentiated instruction in content in one intensive summer course. Examining additional cases of elementary school English teachers with different educational backgrounds and in different educational contexts (i.e. urban, remote, or rural) would contribute to a fuller understanding of elementary school English teachers’ perceptions and practices of differentiated instruction in content. To further investigate the differentiated instruction in content, it is worthwhile to observe and videotape these three teachers’ classroom practices among elementary school English students in their schools along with interviewing these learners.

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References
Chan, Y. J. (2008). Incorporating literature circle in a sixth-grade English class in Taiwan (Unpublished master’s thesis). Ming Chuan University, Taiwan.


Yeh, S. Y. (2012). The influences of student team achievement division on the elementary school students’ English learning attitude and English learning efficiency (Unpublished master's thesis). National Taiwan University, Tainan.