

Comparison of Teacher Talk of Korean and Native English-speaking Teachers: On the Efficiency of Delivering Content Knowledge in EFL Contexts*

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This study examined content-area classes conducted in Korean EFL students' L1 (Korean) and L2 (English), in order to examine whether such immersion/CLIL program may or may not be forfeiting students' content learning at the expense of L2 learning. By comparing the teacher talk of Korean and native English-speaking elementary teachers teaching math and science, focusing on the amount and depth of content knowledge delivered as well as the amount of scaffolding included, this study shows that the L2-medium content classes did not cover as much or as high-level content knowledge as the L1-medium classes. The teachers in the L1-medium classes provided more scaffolding and encouraged deeper thinking and active participation as well. The findings are discussed in terms of students' language proficiency and language-learning context.

Key words: Language immersion, CLIL, Korean EFL learners, teacher talk

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INTRODUCTION

Language immersion and Content and Language Integrated Learning (CLIL)¹ are pedagogical approaches to foreign language education for which content instructions are carried out via the target language (L2). Namely, L2 is used as the medium of content instruction as well as language instruction. A variety of types of language immersion/CLIL programs have been implemented for the purpose of foreign language education and much research has supported its positive effects. However, what should be at the center of any CLIL programs is the consideration for effective delivery of content knowledge and facilitation of students' achievement in the content area, as well as provision of abundant opportunities for students to receive meaningful target language input. This is why although immersion/CLIL has gained widespread popularity and recognition, a number of controversial issues remain with regard to its effectiveness. While proponents for immersion/CLIL program argue that it benefits L2 learners by engaging them in meaningful communication (Grabe & Stoller, 1997; Snow, Met, & Genesee, 1989; Swain, 1993), others point out that it is detrimental for learners' understanding of the content knowledge. For example, Met and Lorenz (1997) drew limitation on the efficiency of immersion/CLIL by revealing that such programs were disadvantageous for the learners' understanding of abstract concepts in content areas due to their inadequate L2 proficiency although comprehension of some concrete ideas was not impossible.

Given that immersion/CLIL programs have dual purposes of promoting both L2 proficiency and content knowledge learning, it is important to investigate how much content knowledge is actually taught, or whether content teaching is sacrificed at the expense of language teaching, and what teachers do to achieve these goals in such a classroom. Much more attention

¹ Although there may be some differences in the two programs, the terms were used interchangeably in this study, in order to incorporate as much information as available by previous studies with different foci and research contexts.

has been paid to research on effectiveness of such program by focusing on L2 acquisition rather than students' content knowledge gains. Although some did pay attention to content knowledge delivery (e.g., Bournot-Trites & Reeder, 2001; Genesee, Holobow, Lambert, & Chartrand, 1989; Hau, Marsh, & Kong, 2000; Kim, 2003; Kong, 2008; Min, 2008; Seikkula-Leino, 2007; Swain, 1996; Yip, Tsang, & Cheung, 2003), they rarely examined what actually happened in immersion or CLIL classrooms. Specifically, very few studies have compared the effectiveness of immersion/CLIL classes with regular L1-medium classes in terms of content knowledge coverage. Therefore, the present study attempts to investigate whether the amount and nature of content knowledge covered in English immersion classrooms differ from those in regular L1-medium classrooms, and whether teachers in the two types of classrooms display different teaching approaches as reflected in their teacher talk.

BACKGROUND

Although numerous studies have examined the effects of immersion/CLIL programs on students' content knowledge gains, the findings are not in concurrence. Those that found positive effects have shown that students attending immersion/CLIL programs showed as much, or in some cases, better achievement in the content area compared to students in non-immersion/CLIL programs (Bournot-Trites & Reeder, 2001; Genesee et al., 1989; Roquet, Escobar, & Cuscó, 2004; Swain, 1996). Genesee et al. (1989), for example, found that in teaching mathematics via French immersion program, there were no significant differences between the experimental and the control groups on the mathematics subtests administered in English. Swain (1996) similarly demonstrated that early total immersion students consistently performed as well as their monolingual, English-instructed peers on standardized tests of mathematics and science. Swain also examined the difference between total immersion and partial immersion to see if the degree

of exposure in an immersion program has an effect on learners' achievement. She reported that partial immersion students did not perform as well as their English-educated peers in either science or mathematics, whereas total immersion students did. Roquet et al. (2004), in their study of observing an English CLIL history class in Spain for three months, found that the mainstream students benefited enormously from CLIL programs in consolidating their communicative skills in the target language (English) and in acquiring new skills and knowledge in the content area. Both the teachers' and students' reports showed that the students learned more English and history than those in conventional English or history classes.

In contrast, other research, mostly conducted in Asian countries, reported that immersion/CLIL has a negative influence on students' content knowledge learning (e.g., Hau et al., 2000; Kim, 2003; Kong, 2008; Min, 2008; Seikkula-Leino, 2007; Yip et al., 2003). For example, Yip et al. (2003) found that students who underwent English-medium (L2) instruction in Hong Kong, despite their higher initial ability, were found to perform much more poorly than their Chinese-medium (L1) peers on a science achievement test. They were particularly weak in problems that assess understanding of abstract concepts, the ability to discriminate between scientific terms, and the ability to apply scientific knowledge in novel or realistic situations. Hau et al. (2000) focused on science, geography, history and mathematics in secondary immersion programs in Hong Kong, and concluded that there were negative effects on high school students' content area learning, although there were slight positive effects on their English learning. Similarly, examining the Korean situation, Min (2008) argued that since Korean students' English proficiency is not high enough to learn and achieve mathematic content knowledge delivered in English, the teachers had trouble fulfilling specific content objectives and that this would make students lag behind.

On the whole, previous studies have shown that the efficacy of immersion/CLIL in terms of content knowledge achievement varies across studies and it could be related to the context of language learning (e.g., ESL vs. EFL) or typological distance between L1 and L2 (e.g., French-English

learners vs. Chinese-English learners). For example, native English speakers in French immersion program in Canada have advantages in that the two languages are not typologically distant, and French exposure outside school is not rare in Canada, whereas this is not the case in many Asian countries including Korea. Further, most of the studies mentioned above have mainly focused on students' content area achievement by comparing their performance before and after their experience in immersion/CLIL programs. Although this approach was able to identify the effects of such program on student achievement, they were not able to look into how the teachers of such programs actually deliver content knowledge and what specific efforts they make to ensure students' full understanding. Kim and Ko (2008) argued that for a successful immersion education which enables students to naturally acquire L2 in the process of learning content subjects and to successfully gain content knowledge via L2 instruction, teacher quality, students' linguistic proficiency, and institutional and environmental supports are greatly in need. Particularly, considering that teacher talk accounts for about 72% of the entire class, as reported by Musumeci (1996), the quality of teacher talk could be a dominant and decisive factor that determines students' success in content knowledge understanding.

With regard to the importance of teacher talk, it is worthwhile investigating how it is presented for the purpose of conveying content knowledge in immersion/CLIL classrooms. Especially in EFL contexts like Korea where students' language proficiency and exposure to the target language is relatively low, it is imperative to investigate what efforts teachers make with their talk to facilitate students' understanding of abstract concepts and principles in content classes such as mathematics and science. This could also generate implications for professional development for immersion/CLIL-teaching.

Teacher talk that takes approximately two thirds of a lesson (Sinclair & Coulthard, 1975) has been highlighted for its crucial importance in classes with various functions. Class objectives are achieved through communication between the teacher and students (Seong, 2006), and teacher talk has an

important role of scaffolding (Kim & Ko, 2008) and stimulating ‘dialogic inquiry’ (Wells, 1999). Therefore, teacher talk encourages students to participate in discussions that further equip them with subject-specific language use at the discourse level as well as knowledge inquiry strategies. With the recognized importance, it has gained attention from researchers and studies have been conducted on both the quantity and quality of teacher talk to find out how teacher talk effectively facilitates learning and communicative interaction (Cullen, 1998).

Teacher talk in L2 also serves as comprehensible input that boosts successful language acquisition (Ellis, 1984; Krashen, 1981), and provides opportunities for negotiation of meaning which facilitates L2 acquisition (Long, 1985). However, teacher talk in L2 also has the danger of potential miscommunications and hence the accurate understanding of the subject knowledge might be compromised (Seong, 2006). Therefore, studies of teacher talk in immersion/CLIL for which understanding of content knowledge as well as L2 exposure are the primary goals are necessary.

Richard-Amato (1984) divided the functions of teacher talk into three categories: management of the flow of the class (structuring functions), facilitation of comprehension (content function) and lowering of the students’ anxiety (affective function). Along this line, past research has shown that teacher talk plays a crucial role in students’ attainment of content knowledge (Mortimer & Scott, 2000; Sharpe, 2008), in aiding effective teaching itself (Carin, 1997), and in establishing rapport with students for emotional scaffolding (Bianco-Mathis & Chalofsky, 1996; Brown, 1994; Rosiek, 2003). In a nut shell, teacher talk is imperative for efficient and effective learning and teaching to occur in learner-friendly contexts, as teacher talk has been proved to have a function of scaffolding that facilitates efficient delivery of content knowledge (Cazden, 1988; Sharpe, 2006). Sharpe (2006) claimed that scaffolding in teacher’s discourse supports conceptual development and encourages students’ use of the discourse specific to each subject area. Similarly, Gibbon (2003) presented that ‘contingent’ and ‘precise’ scaffolding in teacher talk such as request for clarification involves students in more

comprehensive discussion in an immersion/CLIL class. Though these results are in agreement with the functions of scaffolding in general, little attention has been given specifically to scaffolding in teacher talk. The effectiveness of each of these scaffolding strategies has been investigated separately (Fillippone, 1998; Goodwin, 1986; Han, 2006; Harman, 2002; Hattie, 1992; McKenzie, 1999), yet their distribution in teacher talk, especially in L2 classrooms, has rarely received any research attention.

Studies on teacher talk in Korea are relatively more restricted in their numbers and scopes. Most researches focused on specific elements of teacher talk such as question techniques (Byun, 1995; Jin, 2000; Lim, 1996) and recast (Jang, 2004; Kim, 2007). Moreover these studies in EFL contexts are limited to investigating its effects on acquisition of the target language in more general terms (Lee, 2002; Lee, 2007; Park, 2005). Regarding the limited focus of previous research, Seong (2006) suggested further research on teacher talk in terms of its function as content knowledge delivery. In addition, studies on teacher talk in EFL contexts are greatly in need, as the number of native speakers in schools steadily has increased and English education policy encourages TETE (Teaching English Through English). Kim and Ko's (2008) study on teacher talk in an elementary science immersion class, despite its comprehensive investigation of teacher talk, focused only on the native English-speaking teacher's talk alone and was not able to identify their distinctive features in EFL contexts. Thus the focus of current study is to document features of teacher talk in L2-medium content classes, compared to that in L1-medium content classes, and to explore specific elements of scaffolding in teacher talk, such as back-channeling, feedback, and cueing.

Given the significance of teacher talk, especially its positive influence on content knowledge delivery, it is important to explore what differences exist in the teacher talk in content area classrooms taught in L1 and L2. Therefore, the present study was designed to compare teacher talk of Korean teachers teaching in L1 and native English-speaking (NES) teachers teaching in English (L2) in mathematics and science classrooms. The specific research

questions this study addressed are the following:

1. Are there differences in the amount and depth of content knowledge delivered by Korean and NES teachers in elementary math and science classrooms?
2. Between the two groups of teachers, are there differences in the use of teacher talk produced to convey content knowledge?

It was hypothesized that the Korean teachers might be more skillful and successful at delivering content knowledge than the NES teachers in terms of the amount and depth of content knowledge covered in class. The Korean teachers would be able to produce more content-related teacher talk not because of the NES teachers' inadequate professional training or their teaching ability, but possibly because of the difference in the medium of instruction that would greatly affect and limit what they could do in the classroom, largely due to the target students' language preparation, or under-preparation.

METHOD

In this study, four NES teachers who are state-certified elementary school teachers in the U.S. and two Korean in-service elementary school teachers participated. The NES teachers were visiting Korea to teach for one-full semester. All participating teachers were in their twenties, with approximately equivalent length of teaching experiences of about 2 years. Two of the teachers were teaching 3rd grade while the others were teaching 4th grade in the same public elementary school in Seoul, Korea. This school was teaching specific content areas (e.g., math and science) in English as well as in Korean. The students in the participating teachers' classrooms were all able to carry simple conversations in English, and had grade-appropriate size of vocabulary as reflected in their Peabody Picture Vocabulary Task score and great listening comprehension skills as shown in their school achievement test

records. Most of the students also demonstrated good command of reading and writing skills in English.

Procedure

The participating teachers' science and mathematics classes were videotaped. These classes were regular content classes, and there was no other audience than the students and a researcher. As those classes were not part of teachers' workshops or teaching demonstrations, it could be assumed that the participants taught the classes as they would usually and naturally do without the video camera.

Transcription and Coding

The videotaped classes of the two groups of teachers were transcribed verbatim into the Child Language Data Exchange System (CHILDES) (MacWhinney, 2000). The unit of analysis for the videotaped class was each utterance produced by the teacher. Only those utterances that pertain to conveying content knowledge (i.e., content knowledge explanations, provision of examples, encouraging students to speak up regarding the class topic, etc.) were analyzed. Utterances that were not directly related to content knowledge delivery (i.e., class-management talk, such as "*be quiet*") were excluded from the analysis.

Utterances of the teachers were coded at two different levels in this study: One was content knowledge tier and the other was teacher talk tier. The content knowledge tier was designed to examine how the two groups of teachers deliver content knowledge and to what extent. The specific sub-codes of this tier are the following:

- Background knowledge activation (e.g., "Of course, I'm sure you've seen springs before.")
- Introducing class objectives (e.g., "so we're going to work with Unit 4, parallel

and perpendicular lines.”)

- Terminology definition (e.g., “What are parallel lines?”)
- Terminology repetition (e.g., “What is the Korean word for spring? Whole class together!”)
- Terminology examples and expansion including the introduction of synonyms, antonyms and code-switching (e.g., “I know you guys have a different word for it.”)
- Explanation of the main concepts (e.g., “You can pull them apart and put them back together.”)
- Examples of the main concepts (e.g., “What shape is the building?”)
- Expansion of the main concepts: Going beyond the main topic at hand (e.g., “if you hold them at one end and you let go, do you feel the energy going through your other hand?” when the main objective of the class was to teach features of springs)

For quantitative comparison of the amount of content knowledge delivered by the two groups of teachers, the number of main concepts introduced and covered in the class was also counted. The above codes were further sub-categorized by the sentence types (i.e., question, statement, imperatives, etc.) in order to explore whether there were any preferred forms in accomplishing the above content knowledge delivery functions by the two groups of teachers.

The teacher talk tier was included in order to identify potential differences in teacher talk produced by the two groups of teachers. For this analysis, utterances of the two groups of teachers were analyzed for their question types, types of scaffolding, and comprehension checkup. The following are the sub-codes for this tier:

- Question types
 - Yes/No question (e.g., “is it moving from here to here?”)
 - Wh- question (e.g., “Where’s the air going?”)
 - Or- questions (e.g., “is the balloon going this way or going that way?”)

- Scaffolding
 - Back-channeling (e.g., “uh-huh”, “yes”, etc.)
 - Feedback (e.g., Students: “90 degrees”; Teacher: “90 degree angles.”)
 - Positive assurance (e.g. “yes, right, it’s a spring.”)
 - Guided cues (e.g. “now I’ll give you a hint.”)

Feedback includes recast, clarification, confirmation, repetition, and encouragement. In order to investigate how the two groups of teachers attend to students’ understanding of content knowledge, the category of comprehension checkup was included as well. This consists of the following sub-codes.

- Comprehension check (e.g., “Did you get it?” “Do you understand?”)
- Soliciting questions (e.g., “Do you have any questions?”)
- Recall (e.g., “Do you remember...?”)
- Asking for reasons (e.g., “Why do you think this happened?”)
- Asking students’ predictions (e.g., “What do you think will happen?”)
- Asking about the relationship (e.g., “What is the relationship between...?”)

In addition, as the classes in this study were targeting elementary school students, teachers in both groups tended to rely on hands-on activities and visual materials rather than long, elaborate verbal explanation. In order to capture this, a separate analysis for activity types was also included, assessing whether the teacher provided modeling before class activities, what kinds of activities (i.e., individual, pair, group, and whole class) the teachers included, whether they provided debriefing after the activity, and whether they used any visual materials (i.e., PPT presentation, realia, and video clips).

Reliability of Coding

To test the reliability of the designed coding system, approximately 20% of the data was randomly selected. Two researchers independently coded the selected sample for each of the codes. Cohen’s kappa (Bakeman & Gottman,

1997), a measure of inter-coder agreement that corrects for chance, was 0.83.

RESULTS

In order to first examine whether there were any differences in the amount of content-related teacher talk, lexical complexity, and sentence complexity between the Korean and NES teachers, a series of t-tests were conducted, comparing the number of utterances, words, and the number of unique words produced, as well as type/token ratio and the total number of concepts covered by the two groups of teachers (see Table 1).

TABLE 1
Means and Standard Deviations of the Total Number of Content-related Utterances, Words, and Types Produced by the two Groups of Teachers

	<i>Korean Teachers</i>	<i>NES Teachers</i>	<i>t</i> (<i>p</i>)
	Mean (<i>SD</i>)	Mean (<i>SD</i>)	
Token	2472.50 (622.96)	2502.00 (216.06)	.09 (.93)
Types	1152.50 (242.54)	604.50 (118.60)	3.98* (.016)
Type/Token Ratio	.47 (.02)	.24 (.06)	5.30** (.006)
Total number of utterances	380.00 (55.15)	346.00 (75.09)	.56 (.61)
Total number of concepts covered in class	2.00 (1.41)	1.00 (.00)	1.63 (.18)

~*p* < .10 **p* < .05 ***p* < .01 ****p* < .001

As can be seen in Table 1, the total number of words and total number of utterances produced by the two groups of teachers were not significantly different ($t=.09$, $p=.93$; $t=.56$, $p=.61$, respectively). In other words, the two groups of teachers produced similar amount of content-related talks in their respective classes. However, in terms of lexical diversity, the two groups of teachers displayed significant differences. The Korean teachers' talk included

significantly more word types ($t=3.98, p < .05$), thus resulting in significantly higher type-token ratio ($t=5.30, p < .01$). This means that the Korean teachers provided much more lexically diverse input in their teacher-talk. This could reflect the NES's attempt to accommodate students' English proficiency in their teacher talk. In terms of the number of concepts covered in class, the two groups of teacher did not show significant difference ($t=1.63, p = .18$). More specifically, the Korean teachers covered 2 concepts on average, while the NES teachers covered 1 concept on average in their 40-minute classes.

In order to account for the differences in the amount of talk produced across teachers, subsequent analyses were based on the proportion of each code to the total number of utterances.

TABLE 2
Means and Standard Deviations of Different Types of Content-related Teacher Talk

	<i>Korean Teachers</i>	<i>NES Teachers</i>	<i>t</i> (<i>p</i>)
	Mean (<i>SD</i>)	Mean (<i>SD</i>)	
Background knowledge activation	1.76 (2.49)	.54 (.50)	1.07 (.35)
Introduction of main concepts	.92 (.05)	1.04 (.67)	.25 (.81)
Terminology definition	.597 (.84)	1.97 (2.25)	.79 (.47)
Terminology repetition	.00 (.00)	.89 (1.17)	1.02 (.37)
Terminology examples & expansions	.00 (.00)	.48 (.73)	.87 (.43)
Explanation of the main concepts	11.53 (6.51)	10.36 (4.01)	.28 (.79)
Examples (real world connection) of the main concept	1.21 (.36)	7.42 (5.72)	1.45 (.22)
Expansion of the main concept	9.14 (4.63)	3.62 (.74)	2.65~ (.06)

~ $p < .10$ * $p < .05$ ** $p < .01$ *** $p < .001$

Another series of t-tests were conducted in order to compare the

distribution of different types of content-related teacher talk between two groups of teachers (See Table 2). Allocation of teacher talks to activate background knowledge and to introduce the main topic did not show significant difference ($t=1.07, p=.35$; $t=.25, p=.81$, respectively) between the two groups of teachers. This suggests that both groups of teachers introduced the target content knowledge by activating and reminding students of what they may already know about the topic and by explicit introduction. Despite the insignificant mean difference between the two groups, however, it is worth noting that the Korean teachers' talk related to background knowledge activation was more than three times frequent compared to the NES teachers. That is, the Korean teachers allocated much more talk to connecting the new concepts to students' existing knowledge than the NES teachers.

In addition, no statistically significant difference was found in teacher talk providing formal definitions of the new terms ($t=.79, p=.47$), repeating the new terms for emphasis ($t=1.02, p=.37$), and providing examples and expansion of the new terms ($t=.87, p=.43$). However it should not be construed as similar amount of teacher talk was allotted to teaching of the target terms in the two groups. Although the t-test result did not reveal significant group difference, due to the small sample size, the NES teachers included nearly four times more amount of term definitions, compared to the Korean teachers, and the Korean teachers produced no utterance related to term repetitions and expansions. The shared mother tongue between the students and teachers might explain why the Korean teachers did not necessarily have to produce redundant term-teaching utterances. In addition, there was no significant group difference in teacher talk that explain and provide examples for the main concept to be covered ($t=.28, p=.79$; $t=1.45, p=.22$, respectively). However, teachers' talk that expand on the main concept showed significant group effect at .10 level of significance ($t=2.65, p=.06$). In other word, the Korean teachers were more likely to explain the main concept at more expanded and sophisticated level, compared to the NES teachers. In short, the two groups of teachers differed greatly in that the NES teachers focused more on defining and teaching the new terms, thus attending

to more lower-level skills and knowledge, while the Korean teachers focused more on expanding students' understanding of the main concepts, thus going beyond what was necessary to bring students' understanding to a higher level.

TABLE 3
Means and Standard Deviations of Sentence Types in Teacher Talk

	<i>Korean Teachers</i>	<i>NES Teachers</i>	<i>t</i> (<i>p</i>)
	Mean (<i>SD</i>)	Mean (<i>SD</i>)	
Questions	12.66 (.35)	9.78 (4.90)	.78 (.48)
Statements	10.00 (.04)	11.86 (5.32)	.47 (.66)
Imperatives	2.08 (2.12)	.74 (.56)	1.33 (.25)
Repetitions	3.63 (1.09)	3.93 (1.51)	.25 (.82)

$\sim p < .10$ * $p < .05$ ** $p < .01$ *** $p < .001$

As Table 3 shows, sentence types of utterances produced by the two groups of teachers did not show significant group effect ($t=.78$, $p=.48$ for questions; $t=.47$, $p=.66$ for statements; $t=1.33$, $p=.25$ for imperatives; $t=.25$, $p=.82$ for repetitions). That is, both groups of teachers incorporated various types of sentences and did not show any specific preference for certain forms when conveying content knowledge. However, a more detailed analysis of sentence types in relation to the function of each utterance revealed a significant difference in the use of statement forms for expansion of the main concept between the two groups of teachers at .10 level of significance ($t=2.43$, $p=.07$). In fact, the Korean teachers produced twice as much main concept expansion in statement forms compared to the NES teachers ($M=3.2$ and 1.6, respectively). On the whole, the Korean teachers allocated much more talk to elaborate the main concepts in depth and expand them in connection with real life examples, compared to the NES teachers. In addition, despite the statistical insignificance, again due to the small sample size, the Korean teachers produced imperative sentences almost three times

more than the NES teachers. Since imperative sentences are used mostly when teachers give directions, this finding suggests that the Korean teachers were more authoritative and exerted relatively less flexibility, compared to the NES teachers.

Next, in order to further investigate whether any specific question type was preferred by the two groups of teachers, another group comparison was made, comparing the amount of each question type produced (See Figure 1). No statistically significant difference was found in the amount of Yes/No questions and Wh-questions ($t=0.18, p=0.87$; $t=1.29, p=0.27$; respectively). Unlike Yes/No questions and Wh-questions, however, the amount of Or-questions produced by the two groups of teachers showed significant group difference ($t=3.49, p=.03$). The Korean teachers used Or-questions more than three times the NES teachers. Or-questions are a closed-ended question form that requires very constrained answers unlike Wh-questions that are open-ended. Thus this finding may reflect the Korean teachers' attempt to engage students' attention to the main topic at hand.

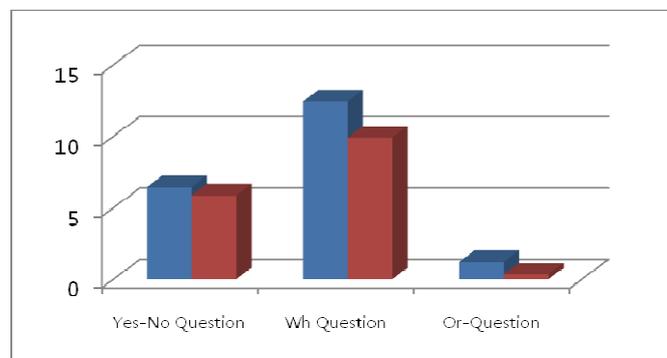


FIGURE 1
The Overall Distribution of Question Types in Teacher Talk

As Table 4 shows, there was a significant group difference in the total amount of scaffolding provided at the .10 significance level ($t=2.30, p=.08$). On average, the Korean teachers provided much more scaffolding as a whole

than the NES teachers. When the specific types of scaffolding were examined, significant group differences were observed in the production of positive assurance ($t=3.03, p<.05$) and guided cues ($t=11.32, p<.01$). In other words, the Korean teachers provided significantly more positive assurance that encouraged students' active participation and displayed empathy toward students, and also included significantly more guided cues that assist students with answering questions. That is, the Korean teachers were much more sensitive to the students' affective needs and security than the NES teachers. There was also a significant group difference at .10 level of significance in the use of back-channeling. In general, the Korean teachers provided much more back-channeling than the NES teachers, which implies that the Korean teachers were also keen on building rapport with students by emphasizing the "togetherness" with the use of "uh-huh", "right", and so on. However, significant group difference was not found in the amount of feedback ($t=1.09, p=.34$). The two groups of teachers produced a similar amount of recast, clarification, confirmation, and repetition. In short, taken together, the Korean teachers were more attuned to students' affective needs than the NES teachers.

TABLE 4
Means and Standard Deviations of Teachers' Scaffolding Strategies

	<i>Korean Teachers</i>	<i>NES Teachers</i>	<i>t</i> (<i>p</i>)
	Mean (<i>SD</i>)	Mean (<i>SD</i>)	
Back-channeling	.56 (.45)	.00 (.00)	2.85~ (.05)
Feedback	7.06 (4.18)	11.22 (4.46)	1.09 (.34)
Positive assurance	6.83 (3.85)	1.40 (.87)	3.03* (.04)
Guided Cues	2.13 (.31)	.13 (.15)	11.32** (.00)
Total number of scaffolding	36.69 (2.12)	28.88 (4.36)	2.30~ (.08)

~ $p < .10$ * $p < .05$ ** $p < .01$ *** $p < .001$

Table 5 displays how the two groups of teachers attended to students' understanding of content knowledge and reassured successfulness of their content knowledge delivery. On average, there was no significant group difference in the amount of comprehension check up across most of the variables examined, although the Korean teachers included twice as much comprehension confirmation questions, solicited much more questions for any unclear understandings, and encouraged students to relate different concepts more than the NES teachers. The only variable that revealed significant group effect was asking students to provide reasons for certain observations ($t=26.02$, $p=0.00$). On average, the Korean teachers asked significantly more questions that encouraged students to think critically on issues related to the content area, compared to the NES teachers.

TABLE 5
Means and Standard Deviations of Teacher Talk that Served as Comprehension Checks

	<i>Korean Teachers</i>	<i>NES Teachers</i>	<i>t</i>
	Mean (<i>SD</i>)	Mean (<i>SD</i>)	(<i>p</i>)
Comprehension confirmation	.62 (.47)	.32 (.42)	.82 (.46)
Soliciting questions	.00 (.00)	.17 (.19)	1.14 (.32)
Recall	2.20 (3.11)	2.90 (4.27)	.20 (.85)
Asking for reasons	4.08 (.03)	.28 (.19)	26.02*** (.00)
Asking students' predictions	.53 (.08)	.68 (.99)	.20 (.86)
Asking about relationship between concepts	.00 (.00)	.24 (.35)	.92 (.41)
Total amount of comprehension check up	7.44 (2.75)	4.57 (5.53)	.66 (.54)

$\sim p < .10$ * $p < .05$ ** $p < .01$ *** $p < .001$

Finally, the types of class activities adopted by the two groups of teachers were examined (See Figure 2). Whereas most of the class activities did not

show significant difference between the two groups, there was a statistically significant difference in modeling ($t=3.46, p=.03$), as the NES teachers relied significantly more on modeling the activities than the Korean teachers. Other than modeling, however, both groups of teachers used various types of class activities without any specific preference in solidifying the content knowledge delivered. Modeling favored exclusively by the NES teachers might reflect their attempts to overcome difficulties in explaining the activities verbally to students who may not be linguistically prepared to receive high-level cognitive information in an L2. Interestingly, however, both groups of teachers utilized visual materials including Powerpoint presentations, realia, and video clips. In spite of the assumed communication difficulties for the NES teachers, they did not rely on visual materials notably more than the Korean teachers. Pair group activities were included in our analysis, but no such activities were observed.

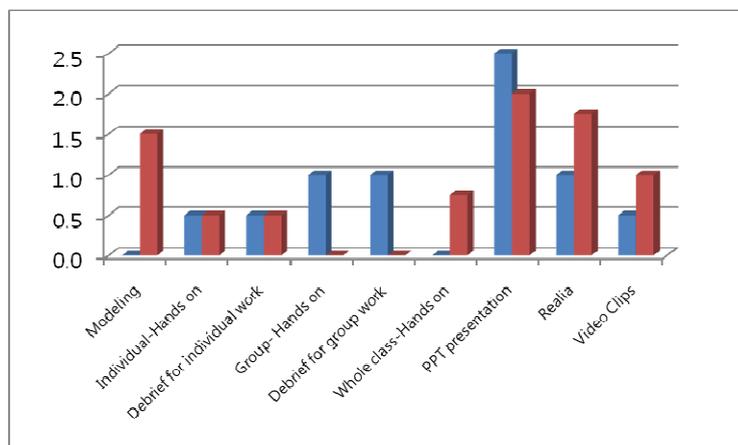


FIGURE 2
Comparison of In-class Activities Adopted by the two Groups of Teachers

DISCUSSION AND CONCLUSION

Focusing on the delivery of content knowledge and teacher talk in the classroom, this study was designed to examine how the Korean and the NES teachers' delivery of content knowledge was similar or different in its amount and depth, and how the two groups of teachers similarly or differently rely on teacher talk to show their sensitivity to students' learning. Overall, as predicted based on previous research findings that mathematics, history, geography, and science in English-based instruction in Hong Kong precluded students from gaining a deeper conceptual understanding (Hau et al., 2000) and that students in Chinese-medium instruction demonstrated higher achievement in science than those with high academic ability in English-medium instruction (Yip et al., 2003), the classes conducted by the NES teachers in this study did not seem to deliver content knowledge as much, or as effectively, as the Korean teachers. More specifically, the NES teachers tended to focus more on term definitions and examples thereof when introducing new concepts rather than on elaborate and detailed explanation of the main principles themselves, while the Korean teachers allocated much more time in explanation and expansion of the main concepts, thus activating much more background knowledge related to the given topics/concepts. However, there was no significant difference in the types of sentences both groups of teachers produced to convey content knowledge except for the concept expansions delivered in statement forms. That is, the NES teachers employed similar kinds of and similar number of sentences types as the Korean teachers.

Very important to note is that on the whole, the NES teachers were less successful at covering as much or as detailed and in-depth content knowledge as the Korean teachers, which may be explained by the language barrier. That is, the NES teachers should have been constrained to do what they might have hoped to or trained to do in the immersion/CLIL classrooms in Korea due to the Korean EFL students' underdeveloped L2 proficiency, particularly in science and mathematics classes which require discussions of abstract

concepts and principles. This may have resulted in the differences between the two groups of teachers' provision of content input in terms of both quality and quantity, which is further related to the very fundamental issue of students' academic achievement as a whole.

The results from the current study also showed that the Korean teachers provided much more positive feedback, guided cues, and back-channeling as ways of scaffolding compared to the NES teachers. Positive feedback has a function of heightening students' motivation (Van Dijk & Kluger, 2000; 2001) in general, and helping them to complete given tasks to achieve subject knowledge (Deci, Koestner, & Ryan, 1999) in particular. Thus it is likely that the incorporation of positive feedback in the Korean teachers' talk may play a significant facilitative role in helping students' understanding of content knowledge. On the other hand, guided cues mainly encourage students to apply what they already know (Marzano et al., 2001), which benefits the students by helping them to process the learned content at more metacognitive level (Harackiewicz, 1979; Harackiewicz, Mabderlink, & Sansone, 1984). In addition, since back-channeling displays the listener's intention to express their interest in what the speaker has been saying (Ishida, 2006), it facilitates students' participation in and concentration on the activities. This attribute of back-channeling as a form of scaffolding helped the Korean teachers keep communicative interactions with the students while helping them to construct their own understanding.

The amount of different sentence types and question types showed similar distribution between the two groups of teachers except for Or-questions. Since Or-questions has the function of clarifying any potential misunderstanding and directing students' attention to important information, the frequent use of Or-questions by the Korean teachers was likely to have positive effects on the successful delivery of content knowledge. Important to note is that there was no utterance found in the NES teachers' talk that attempted to encourage students to expand on what they learned and to reason certain phenomenon out, while the Korean teachers frequently used the strategy to inquire students' reasoning skills. Asking reasoning questions is crucial in content

area classes in that it prompts students to take their understanding to a different level, beyond here-and-now, which also promotes more solid and critical understanding of the given topic. It also supports students' discovery learning that is much more meaningful and purposeful than rote learning. In fact, researchers have shown that questions that stimulate students' higher level of thinking develop deeper level of learning (Hamaker, 1986; Osman & Hannafin, 1994). Regarding the in-class activities, the NES teachers resorted significantly to modeling than Korean teachers in explaining the tasks at hand. This can be attributed to their attempt to overcome the gap between the students' current language ability and linguistic competence required to conduct class activities. Furthermore, consistent with previous findings (Hau et al., 2000; Kim, 2003; Kong, 2008; Min, 2008; Seikkula-Leino, 2007; Yip et al., 2003), differences were found between the two groups of teachers in the total number of unique words included in their talk, which indicates that the Korean teachers produced lexically more diverse input in their teacher-talk than the NES teachers. This may reflect the fundamental problem of the students' linguistic un-readiness, as previously discovered by Min (2008), which, at the same time, points to the potential danger of students lagging behind in the content classes taught in L2 because of language problems.

To summarize, the Korean teachers produced better and more teacher talk than the NES teachers in delivering content knowledge, with much more lexically diverse input and scaffolding. Moreover, the Korean teachers' talk also showed more sensitivity to students' affective needs that could further assist their understanding of content knowledge and provided more encouragement for students to develop reasoning skill. These results, however, do not necessarily mean that the NES teachers were not as good of teachers as the Korean teachers, as they were, too, trained extensively to be elementary teachers and also have been rated as "good" teachers in the U.S. Rather, these may reflect the mismatch between the teachers and the students in terms of language readiness for efficient content knowledge delivery to occur – the Korean elementary students in a regular public school, although they have demonstrated good communicative L2 proficiency, may simply

have not developed sufficient L2 skills to comprehend and process high-level cognitive input in L2. In fact, the NES teachers' teacher talks included significantly fewer word types that resulted in significantly lower lexical diversity comparing to the Korean teachers despite the fact that NES conducted class in their native language. The findings from this study suggest the great need to consider students' L2 proficiency in not only BICS (Basic Interpersonal Communicative Skills) but also in CALP (Cognitive Academic Language Proficiency) before implementing immersion/CLIL program in a foreign language context, as previously claimed by other researchers (Min, 2008; Park & Park, 2007). Specifically, hasty implementation of L2 immersion/CLIL program for Korean EFL learners who are not yet ready in terms of language ability might lead to their incomplete understanding of abstract concepts and important principles in the content areas which will further impede their academic development and achievement in general. At the same time, it calls for adequate professional development to prepare already-trained NES teachers to meet the needs of the Korean students both linguistically and academically. However, more research effort with bigger sample size is in need to enable further generalizations. In fact, due to the modest sample size of this study, some of the statistical results did not reveal significance albeit seemingly dramatic differences between the two groups of teachers. In addition, further studies with larger samples sizes that also take into considerations the individual differences between Korean and NES teachers such as teaching styles, teaching experiences, and educational backgrounds should be conducted in order to generate more information about the issues that should be considered for successful implementation of immersion/CLIL programs in an EFL context. Furthermore, since this study focused mainly on the teachers' instructional discourse, its effects on the students' actual understanding and academic achievement were not investigated. Thus, future studies that examine how the differences in the content knowledge delivery and sensitivities to students' learning reflected in teacher talk relate to students' learning and understanding are called for. Nonetheless, this study made an important step forward in documenting the

potential challenges and difficulties that even trained NES teachers face in teaching content areas successfully and effectively for EFL students.

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