

Instructional Discourse in Context: A Sociocognitive Analysis of Teacher Explanations in CLIL

journal or publication title	The Journal of Kanda University of International Studies
number	32
page range	101-124
year	2020-03-31
URL	http://id.nii.ac.jp/1092/00001634/

Instructional Discourse in Context: A Sociocognitive Analysis of Teacher Explanations in CLIL

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Abstract

This article investigates how disciplinary knowledge is made accessible through explanations by a teacher in content and language integrated learning (CLIL) lessons. Informed by a sociocognitive approach to SLA (Atkinson, 2002, 2010, 2011; Atkinson, Churchill, Nishino, & Okada, 2007), a multimodal interaction analysis was conducted on teacher explanations of disciplinary knowledge in a CLIL course at a Japanese university. The results indicate that (1) explanation tends to be constructed through teacher-student interaction, which is supported by environmental affordances in the local context, (2) disciplinary knowledge is unpacked through multimodal explanation, and (3) there is a cyclical pattern in the way in which propositional content is represented in teacher explanation, allowing students to be repeatedly exposed to disciplinary knowledge represented at different degrees of abstraction.

Introduction

Instructional discourse in class teaching and textbooks shapes the context of students' learning and is a primary means for students to gain competence in the discipline (Hyland, 2009). When students learn a new discipline such as biology, history, and sociology, they need to familiarize themselves with dense content knowledge of the discipline, which can pose considerable challenges on them. In CLIL settings, the

challenges become even bigger because they need to engage with subject knowledge in a language other than their mother tongue. Under such circumstances, explanations of disciplinary knowledge by teachers, which often ‘unpack’ dense disciplinary knowledge represented in textbooks (Young & Nguyen, 2002), play a significant role in students’ learning.

This study focuses on discourse practices in teacher explanations in a CLIL course taught at a university in Japan. Informed by a sociocognitive approach to SLA (Atkinson, 2002, 2010, 2011; Atkinson, Churchill, Nishino, & Okada, 2007), the study investigates how a teacher makes disciplinary knowledge accessible to students through his explanations. I first review previous research on teacher explanations in CLIL classes and introduce a sociocognitive approach to SLA employed by this study. Then, I analyze two excerpts from a CLIL course on sociolinguistics with a focus on multimodal discourse practices in teacher explanations. Finally, I discuss implications of the findings for CLIL classroom teaching and research.

Teacher Explanations in CLIL

An increased interest in CLIL has led to a growing body of research on CLIL classroom discourse in recent years (e.g., Dalton-Puffer, 2007; Dalton-Puffer, Nikula, & Smit, 2010; Llinares, Morton, & Whittaker, 2012). Research indicates that teachers tend to explain content knowledge through interaction with students in CLIL lessons (Dalton-Puffer, 2007; Llinares & Whittaker, 2010; Nikula, 2010). In Dalton-Puffer’s (2007) seminal work on discourse in CLIL classes in Austria, extended teacher monologue was absent from the data containing 40 CLIL lessons at ten schools (Grades 5-13). Instead, teachers frequently asked questions to students encouraging their participation in the classroom discourse. The emphasis on dialogic teaching was also witnessed in a case study of a CLIL teacher in a Finnish secondary school by Nikula (2010). In this study, it

was observed that the interactional style of a Finnish biology teacher, who taught CLIL lessons in English and non-CLIL lessons in Finnish, was more dialogic in CLIL lessons than in non-CLIL lessons. Using the notion of socialization from sociocultural theory (Lantolf & Thorne, 2006), Nikula argues that whereas the students had already been socialized into the classroom practice where the role of students is that of “passive receivers knowledge” in non-CLIL lessons, the roles of the teacher and students were not so established in the CLIL lessons, thus making the interactional pattern more “give-and-take” (p. 114). Similarly, having observed CLIL students’ more frequent and more varied use of modality (e.g., modal verbs such as *can* and *have to*) in a comparative study of CLIL and non-CLIL students’ language produced in history classes in secondary schools in Madrid, Llinares, and Whittaker (2010) attributed the difference to the CLIL teachers’ interactional style in which they created space for interaction by opening the discussion for a variety of viewpoints and relating historical content to students’ experiences. At the tertiary level, a variation in teacher explanations has been reported. In a longitudinal study of an international hotel management program in Vienna, whose lessons were taught in English, the participants’ lingua franca, Smit (2010) identified two distinct patterns in teachers’ explanations. These were teacher-led explanations of subject-specific terms and ‘community-driven’ explanations of general terms, the latter of which was contributed by not only by the teacher but also anyone in class. In sum, the findings of current research indicate that explanations tend to be interactionally constructed in CLIL classrooms, with possible variation resulting from the type of explananda.

However, there are still areas that need further research. First, although there are studies that looked into multimodality in CLIL discourse (e.g., Escobar Urmeneta & Evnitskaya, 2014; Kupetz, 2011), many CLIL studies have focused on the linguistic aspect of discourse. Given the widely recognized importance of other semiotic resources, such as gesture, visual images, and action in instructional discourse (e.g., Kress, Jewitt,

Ogborn, & Tsatsarelis, 2001; Lemke, 2002; Smotrova & Lantolf, 2013), insights from multimodal research will help to deepen our understanding of CLIL classroom discourse. Second, there is a paucity of CLIL discourse research at the tertiary level. Considering that one of the sources for obstacles in classroom discourse is dense content (Gajo, 2007), more research is needed to explore CLIL discourse at the tertiary level. Thus, this study aims to examine teacher explanations in a university CLIL course with a focus on multimodal discourse.

A Sociocognitive Approach to SLA: Extended Cognition and Alignment

A fundamental tenet of a sociocognitive approach to SLA is that mind, body, and world work integratively in SLA (Atkinson, 2010, 2011). That is, these three are vital parts of SLA and cannot be separated from each other. There are two propositions in the sociocognitive approach that are of particular relevance to this study. The first proposition posits that cognition does not exist in one's mind apart from the world but is *extended* into the world. An underlying assumption of this view is that cognition relies heavily on the external environment (Atkinson, 2010). For instance, when we attend a class at school, we may open a course textbook, solve problems on a worksheet, or write in a notebook key words that a teacher has written on a whiteboard. In the sociocognitive perspective, these tools, i.e., the textbook, worksheet, notebook, and whiteboard, are essential parts of our cognition. More specifically, our cognitive activities occur not independently from these tools but actually *between* the tools and ourselves. This is why it is needed to examine discourse practices in the environment, including what happens between the participants and the sociocognitive tools used by them. The second proposition claims that learning is a process of *alignment*—"the complex processes through which human beings effect coordinated interaction, both with other human

beings and (usually human-engineered) environments, situations, and affordances” (Atkinson et al., 2007, p. 169). This view derives from an assumption that learning is adaptive (Atkinson, 2010). When we learn something new, we need to perform coordinated interaction with, or *align to*, what is afforded in the environment. For instance, when entering an elementary school, a student needs to learn how to use school supplies, participate in class, and interact with others. By doing so, the student adapts to the new environment. In many cases, the process is aided by other participants (e.g., a parent, a teacher, classmates). In sociocognitive research, researchers investigate how alignment takes place in interaction by conducting fine-grained multimodal analyses.

The process in which teachers aid students’ alignment has been intensively investigated by sociocognitive researchers. Atkinson et al. (2007) analyzed how a tutor (Tomo) helped a 14-year-old tutee (Ako) to align with an English grammar point (i.e., present perfect). The findings showed that Tomo carefully coordinated her action with Ako through non-linguistic verbal behavior (e.g., latching her turn onto Ako’s turn, using the same intonation pattern as Ako) and body orientation as she helped Ako to solve questions on a worksheet. This analysis was further extended in a study by Churchill, Okada, Nishino, and Atkinson (2010), which focused on the use of gestures by Tomo. Their analysis indicated that guiding Ako’s attention, Tomo’s gestures made a crucial point in an ostensibly invisible grammar system publicly “visible,” which, in turn, enabled Ako to act on it and solve the questions. Nishino (2017) investigated how a Japanese EFL teacher helped his students to align with their learning environment. As a result of a multimodal interaction analysis (Atkinson, 2011), it became evident that the teacher skillfully used various affordances (Gibson, 1979) in the classroom. For instance, he used a chalkboard and gestures to help the students align to his questions. When the students were unable to answer the questions, he aligned with them emotionally by giving friendly feedback. Guided by the teacher, the students took part in class discourse

and aligned with the language being learned. These studies illuminate how a teacher, or a tutor, draws on multimodal resources to facilitate students' participation in class. Building on the work of sociocognitive researchers, this study examines how a teacher helps students align with disciplinary knowledge in CLIL lessons.

Method

Data collection

Data presented here were collected as part of a larger study on students' explanations of disciplinary knowledge in CLIL (Fujimura, 2018). The data collection was conducted in a CLIL English course on sociolinguistics taught at a Japanese university in 2015. This class was chosen for study because of the teacher's previous experience in teaching the course and his familiarity with the discipline. The class met twice a week for 15 weeks (30 lessons in total). The classroom was equipped with a large whiteboard, part of which functioned as a screen, and a table for a teacher. The students sat at desks facing each other (See Figure 1). In order to gain an understanding of the context of the class, I observed and took field notes of the lessons for 15 weeks except for the days for the mid-term and final exams. I also recorded the lessons with a video camera placed at the back of the classroom for in-depth analyses of instructional discourse.

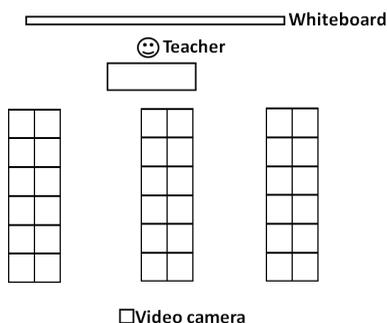


Figure 1. The classroom layout.

The participants of the study are the teacher of the sociolinguistics course and his 25 students. The teacher, who is from North America, has many years of experience teaching Japanese students. He holds a doctoral degree in language education and specializes in sociolinguistics among other areas. The students were juniors and seniors majoring in English. Their English skills were in a range of high intermediate to advanced levels. All of them had at least 600 points on the TOEIC because it was the course requirement. The teacher and student participants were informed of the purposes of the research and agreed to participate in the study before the data collection.

Analysis

In order to examine discourse practices in teacher explanations, I employed multimodal interaction analysis (Atkinson, 2011; Atkinson et al., 2007; Nishino, 2017). Adapted from the work of Goodwin (e.g., 2000, 2003), this approach focuses on coordinated use of semiotic resources in the interaction, including (1) language, (2) nonlinguistic vocal behavior, (3) gaze, (4) facial expression, (5) gesture, (6) head and body movement and orientation, (7) tools, (8) settings, (9) roles and relations (e.g., expert-novice), and (10) arrangements and practices (e.g., participation frameworks) (Atkinson, 2011). In this study, multimodal interaction analysis was conducted on the video data of lessons on dialects (Lessons 13-15), which were transcribed following transcription conventions provided by Atkinson (2011; see Appendix).

Findings

In the sociolinguistics class, the teacher constructed explanations of disciplinary knowledge through frequent interaction with students. By coordinating diverse semiotic resources including speech, written texts and visual images on slides, gesture, and action, he navigated students' attention and supported their alignment with his explanation,

which often involved a cumulative process of meaning making. Below, I analyze two excerpts representing discourse practices that recursively occurred in the teacher's explanations.

Co-constructing a conceptual foundation for a sequenced explanation

Excerpt 1 occurs toward the end of the first lesson on dialects (Lesson 13). Prior to this excerpt, the teacher talked about regional dialects in Japan and people's perceptions about them using a color-coded map (Slide 1 in Figure 2). In the following excerpt, the teacher uses a slide and a question-and-answer sequence to identify a linguistic variation among the students, which functions as a conceptual foundation for his subsequent explanation of a sociolinguistic term *isogloss*.

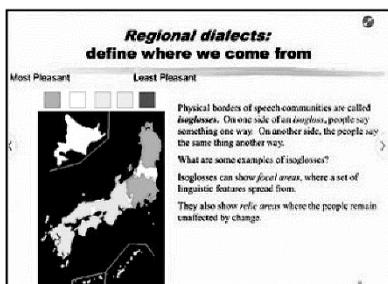


Figure 2. Slide 1 (Lesson 13).

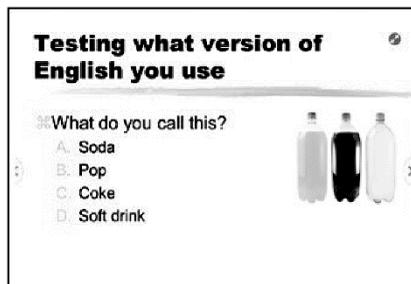


Figure 3. Slide 2 (Lesson 13).

Excerpt 1 Isogloss (Part 1)—Identifying a linguistic variation in class

1 T: ((shows Slide 2 [Figure 3]; reorients body to Ss [Picture 1]))



Picture 1

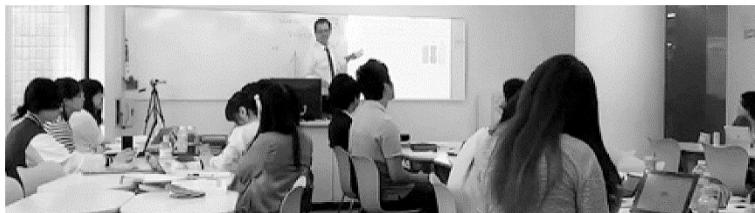
2 uh: you can s- **you can study where the dialects are,**
3 ((moves RH diagonally [Picture 2])) **you can create** these
4 maps **those maps**, by the way I'm just gonna show you: (oh
5 probably) ((shows the next slide but immediately goes back
6 to Slide 2)) we'll do this exercise first. uh I can even test
7 in some way ((reorients body and extends RA toward Ss))
8 what kind of English you guys have learned maybe, uh:
9 **what do you call this in English**, ((points to the picture of soda
10 on Slide 2 [Picture 3])). **do you use the word soda? pop, coke, or soft**
11 **drink** ((points to the four terms on Slide 2 one by one)) raise your hand (if
12 you'd say soda ((raises RH and points to the word *soda* on slide))
13 Ss: (1.6) ((look in the direction of the slide. no Ss captured in the video raise
14 hand [Picture 4]))



Picture 2



Picture 3



Picture 4

- 15 T: raise your hand if you would say pop. ((points to the word *pop* on slide))
16 Ss: (1.5) ((five students raise hand [Picture 5]))



Picture 5

- 17 T: raise your hand if you ('d) say coke. ((points to the word *coke* on slide))
18 Ss: (1.6) ((four students raise hand))
19 T: even though it's not coke. and soft drink?
20 Ss: (1.6) ((two students raise hand))
21 T: **interesting. so can be (.) kind of split** actually (xx)
22 ((moves palms of RH and LH in front of chest [Picture 6]))



Picture 6

(Lesson 13)

At the beginning of the excerpt, the teacher changes the slides and shows a slide with a picture of three bottles of soft drink (Slide 2 in Figure 3). This action allows him to establish a perceptual ground on which he can build his subsequent utterances and to signal to the students that a new sequence of explanation is about to begin. In addition,

the choice of a familiar item (i.e., soft drink) is likely to reduce the distance between the students and disciplinary knowledge, or in sociocognitive terms, facilitate students' alignment with his explanation. The teacher then reorients his body to the students, creating a shared cognitive space between the students and himself (Picture 1), and says, *you can study where the dialects are, you can create those maps* (line 2). It should be noted that the teacher uses the combination of the interactional discourse marker *you* (Hyland, 2005) and an action verb, placing the students in the center of the action (*you can study, you can create*). Such discourse practice enables him to establish a participation framework (Goffman, 1981) where students are assigned to an active role in the discourse. Moreover, as he says *you can study where the dialects are*, he moves his right hand diagonally from the level of his head to his waist (Picture 2). This hand movement, which appears to be a metaphoric gesture (McNeill, 1992) representing a spatial spread of regional dialects, enables him to make the invisible distribution of dialects perceptually salient in the public cognitive space.

Then, the teacher says, *we'll do this exercise first* (line 6), and initiates a question-and-answer sequence (lines 9-20). The sequence begins with two questions. With the first one (*what do you call this in English*, line 9), the teacher directs the students' attention to the picture of soft drink on the slide by a combined use of the deictic pronoun *this* and a pointing gesture (Picture 3). With the second question (*do you use the word soda, pop, coke, or soft drink*, lines 10-11), he scaffolds the students' task by telling them to choose from the four options. As he says *raise your hand (if) you'd say soda*, he raises his own hand, thus demonstrating a model action for students. Responding to the questions, thus aligning with the teacher-initiated sequence, the students indicate their answers by raising, or not raising, their hands. While no students raised their hands for the option of *soda* (line 13, Picture 4), five students raised their hands for *pop* (line 16, Picture 5). The expressions *coke* and *soft drink* were chosen by four students and two students,

respectively (lines 18 and 20). The repetition of the question-and-answer sequence indexes what kind of English the students have learned. As a result, a linguistic variation among them has emerged and this variation serves as a conceptual foundation on which the teacher builds his explanation of the term *isogloss* later in the lesson. Moreover, because the variation exemplifies how isoglosses might look on a map, the interaction can be understood as a process in which the teacher and students co-construct an example of the discipline-specific concept.

Finally, having observed the variation in the students' responses, the teacher gives a brief evaluative comment on it, seemingly revealing a sociolinguistic view on such a variation (*interesting, so can be kind of split*, line 21). In this utterance, he gesturally makes the conceptual *split* perceptually salient by making small motions with his palms as if he were touching patches of invisible regions that were spread in space (Picture 6).

Excerpt 1 demonstrates the teacher's use of diverse resources that support the interactional construction of explanation. More specifically, the slide (Slide 2) and his body orientation (Picture 1) create a public cognitive space for interaction to take place. In speech, he discursively places the students in the center of action (lines 2-4), thus giving them a subjective role in their relation to disciplinary knowledge (e.g., *you can study where these dialects are, you can create those maps*). During the question-and-answer sequence (lines 9-20), his embodied utterances (e.g., pointing gesture, a model action) guide the students' participation in the interaction. After the question-and-answer sequence, a key meaning in his comment (*split*, line 21) is gesturally highlighted (Picture 6) (See Figure 4 for a summary of discourse phases in the teacher explanation and resources used in Excerpt 1).

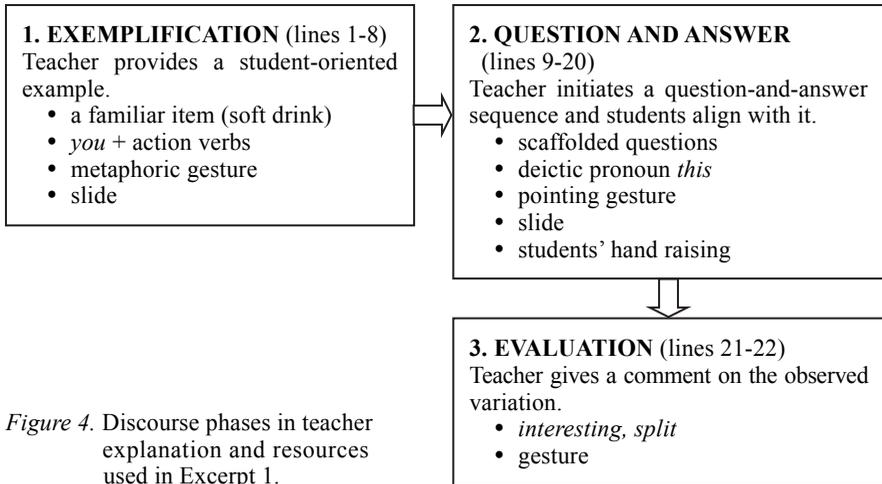


Figure 4. Discourse phases in teacher explanation and resources used in Excerpt 1.

There were other instances in which the teacher interactionally constructed a conceptual foundation in class. For example, he began the first lesson on dialects (Lesson 13) by asking the students *when you hear the word dialect, what comes to mind*. Students' answers such as *Osaka dialect* and *countryside* were then used by him to make a point that students have various ideas associated with the concept of dialect—a point which was further elaborated in order to introduce a sociolinguistic view of dialects. There were also instances where no student offered an answer to a question by the teacher. For example, in the second lesson on dialects (Lesson 14), the teacher asked the students if they know what *leveling* means (*Does anybody know what leveling means?*). While this question elicited no instant responses from the students, the lack of response identified a possible gap in students' knowledge and became a point of departure for the teacher's explanation of *leveling*.

Building an explanation of a discipline-specific term

In Lesson 13, the teacher connects the linguistic variation observed in class (Excerpt 1) and a variation in American English shown on a map (Slide 3, Figure 5). By doing so, he builds an explanation of the sociolinguistic term *isogloss* on the conceptual foundation constructed in Excerpt 1. Excerpt 2 immediately follows Excerpt 1.

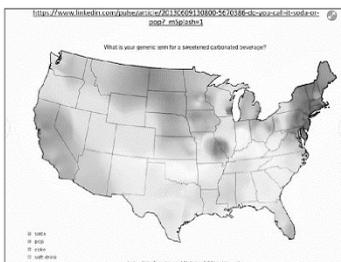


Figure 5. Slide 3 (Lesson 13).

Excerpt 2 Isogloss (Part 2)—Connecting the observed variation and the target term

23 T: **this is one of those vocabulary that actually is regionally separated**

24 ((moves RH and LH vertically as if separating something)) in in in in

25 ((changes the slides and shows Slide 3 [Figure 5])) **American English**

26 actually. ((moves LH over the map)) a:nd **the**

27 **blue is pop.** so a lot of people ((moves LH

28 over an area colored in blue on the map

29 [Picture 7])) including (xx) Canada ((holds

30 LH on Canada on the map)) we use pop a lot (xx).

31 uh **the interesting one is green** ((moves LH over an area colored in green))

32 **which is coke.** uh: if you go to the south of the United States when they

33 wanna drink (xx) any drink that has bubbles in it they will call it (x) coke.



Picture 7

34 even if it's not coca cola. ((crosses his index fingers)) (xx) **I wanna** have
35 coke. no no the orange one ((makes a pointing gesture
36 [Picture 8])) ((slight laughter))



Picture 8

37 Ss: ((slight laughter))

38 T: you know coke! and it's confusing for people (because xxx)
39 coke is must (be) coca cola.

40 Ss: ((laughter))

41 T: but it's a dialect. (xxx). ((turns to the screen)) if you said soda, you are
42 (more) the western(s) or California ((points to the western side of the
43 map)) (and) eastern (x) actually (xx) ((points to the eastern side of the
44 map)) (xx) go to New York (you might) people say I wanna soda. uh:
45 ((looks at the map)) and then soft drink, kind of yellow it's kind of in a
46 (xxx) ((moves LH over an area colored in yellow, and changes slides))

47 **these are sometimes called glosses by the way. Those lines that separate**

48 ((makes diagonal movements with RH [Picture 9])) uh:

49 (xxx) if I know that usually (xx example x) uh yeah

50 let's go back to this one. ((shows Slide 1 [Figure 2]

51 again)) here we go. it's right here. the word *isogloss*,

52 ((points to *isogloss* written on Slide 1 [Picture 10]))

53 (again) **gloss means language iso in this case means**

54 **border.**



Picture 9



Picture 10

(Lesson 13)

After pointing out that there is a variation in the way *soft drink* is called by the students in class, the teacher presents an exposition of a key idea in speech: *This is one of those vocabulary that actually is regionally separated in American English* (line 23). He

then shows a color-coded map on the screen, which visually represents how names for *soft drink* vary in North America (Slide 3 in Figure 5), and gives an extended explanation. First, he says *the blue is pop* (line 26) and elaborates on it (*so a lot of people including xx Canada we use pop a lot*, line 27). In this utterance, the propositional content is represented across several modes: the speech ties a name for *soft drink* to a color on the map (*the blue is pop*) and elaborates on the meaning (*so a lot of people including xx Canada we use a pop a lot*); the hand movement gesturally specifies the region on the map [Picture 7]; and the map shows the location of the region. Next, he says *the interesting one is green* (line 31) and humorously enacts a scene where the use of the word *coke* creates confusion among people (lines 32-39). This part of his explanation is highly multimodal. He uses: (1) the first-person pronoun *I* which refers to a hypothetical character he is acting out (line 34), (2) informal speech, as indicated by the contracted form *wanna* (line 34)—a colloquial style often observed in impromptu lectures (Hyland, 2009), (3) a pointing gesture (line 35, Picture 8), (4) a dramatic tone of voice (*You know coke!*, line 38), and (5) laughter (line 36). This humorous explanation is likely to have had “emotional appeal” (Young & Nguyen, 2002, p. 355) to the students. In fact, the students promptly react to it by joining the teacher’s laughter (lines 37 and 40), which suggests their increased alignment with the teacher’s explanation.

After explaining two more words (*soda*, *soft drink*) in lines 41-46, he finally introduces the term *isogloss* in speech and writing (line 51, Picture 10) and thus connects the linguistic variations observed in class and on the map and the abstract sociolinguistic concept denoted by the term. Furthermore, in line 53, he immediately provides meaning of each part of the term through a code gloss—a metadiscourse resource which supplies additional information by rephrasing or elaborating on what has been said (Hyland, 2005).

Excerpt 2 illustrates a process in which the teacher makes the meaning of *isogloss*

accessible to students by flexibly switching linguistic resources to use. As shown in Table 1, the teacher constructs expositions with non-human subjects (e.g., *this*, *the blue*, *the interesting one*), copula ‘be,’ and the passive voice (*is ... separated*). These compact but semantically dense utterances are then unpacked through elaboration, which is constructed with a different set of linguistic resources: human subjects and action verbs (e.g., *we use*, *you go*, *they will call*). In addition, in elaborations, meaning is often enhanced by gesture and vocal behavior such as vocal emphasis and the dramatic tone of voice. As a result, the discourse practice in this part of teacher explanation forms a cyclical pattern in which dense meaning of disciplinary knowledge is unpacked through contextualization and embodied utterances. Similarly, when the term *isogloss* is presented, its meaning is immediately unpacked through a code gloss constructed in everyday language (See Figure 6 for a summary of discourse phases in the teacher explanation and key resources used in Excerpt 2).

Table 1. *A comparison of teacher utterances in exposition and elaboration*

Exposition	Elaboration
<i><u>This is</u> one of those vocabulary that actually <u>is regionally separated</u> in American English.</i>	
<i><u>The blue is pop.</u></i>	<i>so <u>a lot of people</u> including xx Canada <u>we use pop</u> a lot.</i>
<i><u>The interesting one is green.</u></i>	<i>If <u>you go</u> to the south of the United States when <u>they wanna drink</u> (xx) any drink that has bubbles in it <u>they will call</u> it (x) coke even if it's not coca cola. <u>I wanna have</u> coke. No no the orange one.</i>

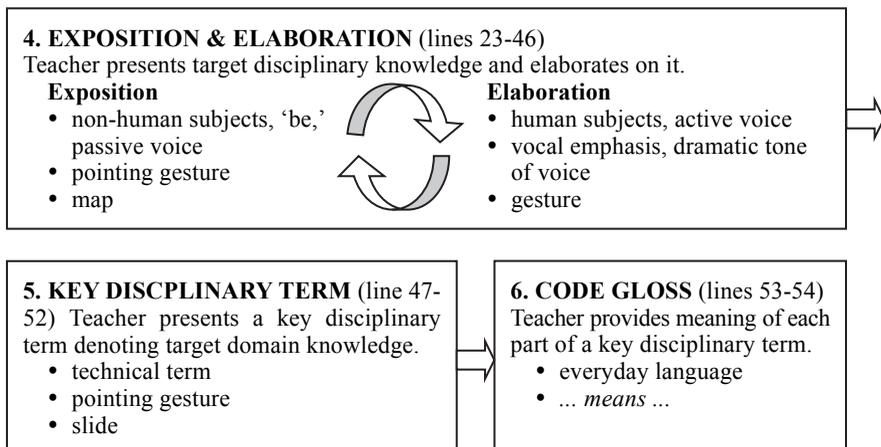


Figure 6. Discourse phases in teacher explanation and resources used in Excerpt 2.

Discussion

This study set out to investigate how disciplinary knowledge is made accessible to students through teacher explanations in university CLIL lessons. The data show that the teacher interactionally constructed explanations of disciplinary knowledge in the sociolinguistics lessons. As Excerpt 1 illustrated, he built a conceptual foundation for the explanation of the term *isogloss* through a question-and-answer sequence. Such interactional explanation corresponds with dialogic teaching reported in CLIL classroom discourse research (Dalton-Puffer, 2007; Llinares & Whittaker, 2010; Nikula, 2010). Moreover, the multimodal interaction analysis of the present study showed that interaction is afforded by the teacher’s manipulation of the local environment. For instance, in Excerpt 1, the teacher restructured the semiotic landscape of the classroom, prior to the question-and-answer sequence by showing a slide and thus creating a public cognitive space for interaction to take place. In the sociocognitive view, cognition heavily relies on the external environment (Atkinson, 2010). Therefore, such restructuring

of the classroom environment can be considered to help students better attend to the teacher's explanation. In fact, in Excerpt 1, the students successfully aligned with the teacher-initiated interaction and participated in the construction of an example of *isogloss* (i.e., different ways of calling *soft drink*).

The analysis also indicated that teacher explanation of disciplinary knowledge is highly multimodal. In Excerpt 2, the teacher explained a variation of the name for *soft drink* in American English, which functioned as another example of *isogloss*, by a joint use of speech, a map, and hand movement. More specifically, the speech tied a name for *soft drink* to a color on the map (e.g., *the blue is pop*), the hand movement gesturally specified a region on a map, and the map showed the location of the region. As a result, linguistic and geographical information encoded in the map was unpacked. According to Escobar Urmeneta and Evnitskaya (2014), multimodal explanations enhance students' comprehension because such explanations facilitate *mediation* of dense content (Gajo, 2007). The findings of the present study illustrate how such mediation of dense content actually takes place. It should be also noted that the map used by the teacher in Excerpt 2 (Figure 5) likely played an important role in assisting students' understanding. In Atkinson et al.'s (2007) study, a grammar worksheet was reported to have contributed to a tutee's understanding by providing interactants (i.e., the tutee and her tutor) with a semiotic resource to publicly work with. Likewise, the map used by the teacher provided him with a semiotic resource to verbally and gesturally manipulate the information on the map, suggesting its contribution to students' understanding. Additionally, in Excerpt 2, the teacher acted out a possible confusion resulting from the name *Coke* by giving a humorous explanation—a similar finding to that of Nishino (2017), which reported on a humorous explanation by a teacher in an EFL class. In the sociolinguistics class, the students' engagement in the lesson increased following the teacher explanation as indicated by their immediate laughter (Excerpt 2, line 40). This finding is consistent with

Nishino's (2017) claim that the use of humor can enhance students' emotional alignment with the teacher.

Furthermore, the analysis showed a cyclical pattern in the way in which propositional content is represented in teacher explanation. As shown in Table 1, the teacher flexibly switched linguistic resources to use and, by doing so, represented propositional content in compact expositions and then unpacked them as action-based representations in elaborations. These findings indicate that the students were repeatedly exposed to disciplinary knowledge represented at different degrees of abstraction. According to Atkinson et al. (2007), learning is a "guided, negotiated trajectory of experience, involving multiple repetitions in slightly varying contexts" (p. 177). The cyclical pattern observed in this study thus seems to contribute to students' learning in the sociolinguistics course because it provides them with multiple opportunities to be exposed to disciplinary knowledge in varying contexts.

Conclusion

The sociocognitive analysis in this study indicated three important aspects of teacher explanations of disciplinary knowledge in a CLIL setting. First, explanation tends to be constructed through teacher-student interaction, which is supported by environmental affordances in the local context. Second, teacher explanation of disciplinary knowledge is highly multimodal, and meaning of disciplinary knowledge is unpacked through such multimodal explanation. Third, there is a cyclical pattern in the way in which propositional content is represented. In teacher explanations, dense and often abstract disciplinary knowledge is recursively unpacked and contextualized, allowing students' repeated exposure to target knowledge in varying contexts.

However, CLIL research can benefit from further studies because instructional discourse is one of many discursive contexts that shape students' learning. How do

students align to disciplinary knowledge when a teacher's guidance is not readily available? How do teacher explanations affect students' engagement with subject knowledge in group work? Answers to these questions would help us gain a fuller understanding of students' learning in CLIL settings.

Acknowledgements

I would like to thank Drs. Eton Churchill, David Beglar, Hanako Okada, and Tamara Swenson for providing insightful comments and suggestions on earlier versions of this paper. I am also grateful to Arthur Nguyen for reading this paper and giving helpful feedback. Last but not least, I thank my participants for their cooperation.

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Appendix

Transcription conventions (Adapted from Atkinson, 2011, p. 163)

- , Nonfinal/continuing intonation followed by short pause
- . Final/falling intonation followed by pause
- ? Final/rising intonation followed by pause
- : Phoneme lengthening
- (()) Nonlinguistic event descriptions
- () Transcriber doubt (parentheses can be filled or unfilled)
- (0.6) Pauses timed in tenths of a second
- (.) Short untimed pauses
- No Underlining marks various kinds of “voice quality,” such as emphasis and stress