The Effectiveness of CBI and Its Applications to Japanese EFL High School Students

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Introduction

In 2011, the Japanese Ministry of Education, Culture, Sports, Science and Technology (MEXT) made an announcement of five proposals and specific measures for developing English proficiency, based on the interim report by the governmental Global Human Resource Development Promotion Council (2011). Among the five proposals, proposal 2 (promoting students' awareness of necessity of English and stimulating motivation for English learning) and proposal 3 (providing students with more opportunities to use English) might be directly involved in pedagogical implementation. While the specific measures proposed by the government seem to largely count on the students' experience in the English-speaking communities and utilization of ALTs, English classes conducted on a daily basis by nonnative English teachers have a predominantly powerful influence on the majority of the students in the Japanese EFL context.

In light of the Japanese high school students, on the other hand, they study English as a foreign language (EFL) with almost no exposure to English outside of the classroom. English has been regarded as one of the subjects that are necessary to enter the university, rather than a means of communication. More precisely, due to the upcoming changes to university admissions, students are increasingly concerned about the new tests in which test-takers' reading and listening fluency are assessed. They take a commercially produced mock examination regularly, and both students and teachers put great emphasis on the results of the test, for it might predict their future success in the entrance examination. Thus, Japanese English teachers have been under pressure to succeed in promoting students' awareness of necessity of English and stimulating motivation for English learning and providing students with more opportunities to use English as well as meeting the students' demands for high-stakes tests. To meet those demands, Content-Based Instruction (CBI) might be a beneficial approach due to its multi-dimensional features.

The paper investigates what kind of language processing might potentially take place and what learning outcome can be expected in CBI classrooms by reviewing some research and theory in the field of second language acquisition. The paper will address the potential benefits of CBI in terms of scaffolding input, scaffolding pushed output, form-focused instruction, sociocultural theory, and then, some benefits and challenges of an application of CBI to Japanese EFL high school students will be discussed.

Content-Based Instruction (CBI)

CBI is "an umbrella term referring to instructional approaches that make a dual, though not necessarily equal, commitment to language and content-learning objectives" (Stoller, 2008, p. 59). CBI has different shapes called by other names and acronyms, including content-based language teaching (CBLT) and content language integrated learning (CLIL). Although CBI/CBLT and CLIL have different roots and geopolitical backgrounds (i.e., CBI/CBLT have been developed in the North American context, while CLIL has been formalized in the European context), approaches to CBI continue to evolve internationally both in ESL and EFL contexts. Thus, it appears to be more pedagogically practical to think of both CBI/CBLT and CLIL as language and content integration continuum, depending on the extent to which the instruction is language-driven or content-driven. That is, at the language-driven end of the continuum are some foreign-language classes that promote target-language development by incorporating a focus on topics with which learners have some familiarity in their L1 as a means of developing target language vocabulary, such as in the Japanese EFL context. Toward the middle of the continuum are program models in which students study one or two subjects in the target language, which might be the typical model adopted by many CLIL programs in Europe. At the content-driven end of the continuum might be school-based immersion programs (Lyster, 2018).

Despite a wide range of variety, there are some common pedagogical issues to be focused on. One is that CBI is designed to help learners to construct knowledge and develop an understanding of a topic, use language meaningfully, and learn about language in the context of learning through language. Thus, CBI can be referred to as a "dual-focused approach" which gives attention both to language and content (Dalton-Puffer, 2011, p. 183). For another, students are provided "more room for active engagement in classroom discourse" than in non-CBI settings, potentially due to the reduced learners' foreign-language-speaking anxiety "caused by something beyond the mere lack of error correction" (Dalton-Puffer, 2011, p. 190).

Review of Critical Studies

In this section, four key components of the learning process in CBI are discussed in terms of scaffolding input, scaffolding pushed output, form-focused instruction, and sociocultural theory, which are based on the researches and theories in the field of second language acquisition.

Scaffolding Input

Input refers to the samples of the language that learners are exposed to. In all approaches to second language acquisition, input is an essential component for learning in that it provides crucial evidence from which learners can form linguistic hypotheses

(Gass & Mackey, 2015). In the Input hypothesis, Krashen (1982) attempts to explain how the second language acquisition takes place. According to Krashen, the learner improves and progresses along the natural order in receiving second language input that is one step beyond the learner's current stage of linguistic competence, which is referred to as *i + 1*. Thus, to promote language acquisition, the comprehensible input must contain a modest number of new linguistic elements, which might include new vocabulary, new patterns for combining words, or grammar rules. In Krashen's hypothesis, learners' attention is primarily drawn to the meaning carried by the comprehensible input, so that they are incidentally learning the elements of the language itself.

While the Input hypothesis is only concerned with *acquisition*, not *learning*,[1] the details of how input contributes to L2 acquisition have been elaborated. VanPatten (2015), for example, claims that acquisition cannot happen if comprehension does not occur, "although comprehension cannot guarantee acquisition" (p. 113). That is, learners' primary focus is on meaning and the connection of form-meaning, and there needs to be input processing before parsing (i.e., the moment-by-moment implicit computation of sentence structure during real-time computation) leads to being incorporated into the learners' internal linguistic system. Thus, VanPatten regards acquisition as a byproduct of learners' actively attempting to comprehend input. Because learners' processing of linguistic data in the input might be affected by various factors such as their L1, he advocates the necessity of pedagogical intervention (i.e., teachers' scaffolding) during input processing with the intent to alter learners' processing behaviors and lead to more appropriate intake.[2]

In terms of comprehensibility, language input is affected by both contextual cues and prior knowledge of a topic (Lightbown, 2014). In CBI setting, teachers often prepare students for a new unit by providing illustrations or realia or encouraging students to brainstorm what they already know. By doing so, teachers are creating situations in which students' comprehension is enhanced because they can make associations between the new information and their prior knowledge or schema (Lightbown, 2014, p. 42). Ball, Kelly, and Clegg (2015) use the term "guiding input" as the CBI teachers' role in terms of guiding students through the demands of lesson input. "Input demands" refer to the listening, watching, and reading skills required to complete a task in an L2. They claim that one of the important roles of CBI teachers is to provide scaffolding input so that they can decode the spoken or written language and arrive at the correct meaning difficult for them utilizing their background knowledge.

As another factor that might affect learners' input, frequency with which language features occur in the input is significant in determining what learners acquire. Ellis (2009) introduces two different types of frequencies: token frequency and type frequency. Token frequency refers to how often in the input that particular word or specific phrase appears. On the other hand, type frequency "is the calculation of how many different

lexical items a certain pattern, paradigm, or construction applies to" (p. 8). For example, the regular past tense *-ed* belongs to high type frequency, whereas the vowel change such as in *swam* and *rang* has lower type frequency. In either case, Ellis maintains that the quality and richness of a representation is determined by the type and token frequencies of the language experienced by the learner. Ellis refers to the connectionist approach and claims that frequency refers to the amount of experience, and more experience leads to more learning, and the properties of the experience should be (a) rich, imageable, and multimodal; (b) richly contextualized; (c) goal-directed and rich in dynamical sensorimotor process; and (d) part of a cultural script. This supports well the 4Cs framework, the key concept of CLIL, in which Content (subject matter), Communication (language), Cognition (learning and thinking), and Culture (social awareness of self and otherness) are all interrelated and closely linked with each other (Coyle, 2007).

On the other hand, there are also convergent concerns in CBI. Empirical research has revealed that the quantity and quality of the input to which CBI exposes students may be insufficient to ensure continued L2 growth. Lyster (2018) claims that for those learners who aspire to reach beyond beginner-levels of proficiency and to develop literacy skills in the target language, an exclusively input-driven approach to language instruction may not help them achieve these aspirations because students may rely on comprehension strategies that bypass reliance on the structure to get meaning. That is, they may rely more on vocabulary, prior knowledge, and inference to comprehend language without processing structural elements in the language. This strategy, however, does not work well in producing the language. Therefore, producing the target language in the context of interaction is another key component of the learning process in CBI.

Scaffolding Pushed Output

In addition to the essential contributions of comprehensible input to language acquisition, researchers point to the value of producing meaningful language. Swain's (2005) output hypothesis was formulated essentially in reaction to Krashen's claim about the major role of comprehensible input. Based on many years of research on Canadian immersion programs, Swain (1988) reached the conclusion that while input helps learners focus their attention on a particular form-functional relationship and thus providing relevant input is necessary, "an equally important way to help learners focus their attention on particular form-functional relationships is to require them to produce language" (p. 73). In addition, learners can disguise their linguistic limitations in comprehension, but they cannot do so in the same way in production, where they need to create linguistic form and meaning and in so doing, discover what they can and cannot do (Swain & Lapkin, 1995). She assumed that this is because any grammatical processing involved in comprehension may be quite different from the logical system of rules required to produce a grammatical utterance.

de Bot (1996) attempted to account for what psycholinguistic processes output might bring about in acquisition based on Anderson's skill acquisition theory. He defines language acquisition as the acquisition of declarative (i.e., controlled information processing) and procedural (i.e., automatic information processing) knowledge, and learning as the development from declarative knowledge to procedural knowledge. de Bot claims that, while output by itself does not create completely new declarative knowledge, it can facilitate the process of the transition of declarative knowledge to procedural knowledge. That is, the main role of output is strengthening already-stored knowledge representations, which would fall under the scope of the fluency function of output (Izumi, 2003). In terms of noticing, de Bot (1996) claims that noticing can lead to learning, because "it may help learner make use of relevant information in the input, or it may stimulate the learner to fill gap in other ways" (p. 551).

Oral interaction between teacher and students as well as among students is crucial part of CBI, and it is obvious that teachers need to provide support for their students to use the target language productively. In their own interaction with students, teachers need to give students appropriate wait time to interpret questions and formulate responses. They also need to create many opportunities for students to use the target language, such as role plays, pair work, and presentations (Lightbown, 2014). However, merely providing opportunities for output is not sufficient for the learners' language development. The theory and research on output above-mentioned provide us with a clearer picture of teachers' role in CBI. Indeed, Izumi (2003) suggests, as a pedagogical implication, that "a good intervention point is obviously when the learners' interlanguage system is most open to change, and this is most likely to be found when the learners are grappling with the specific means of expression to convey their meaning" (p. 186). On the other hand, he also gives us a caution for some factors affecting output effects on learning, claiming that "both situational and linguistic variables can affect the degree to which production forces learners to allocate their attention to form features" (p. 189). That is, some production circumstances are not particularly conductive to inducing learners' sensitivity to form, and other circumstances might carelessly let the learners avoid the need for syntacticization. Thus, specific form-focused instruction as well as 'pushed' output is necessary to drive learners' language development.

Form-Focused Instruction

While instruction needs to ensure that learners focus predominantly on meaning, acquisition also requires that learners attend to form (Ellis, 2005). For this reason, form-focused instruction (FFI) has been utilized on many different aspects of language, such as lexical, syntactic, morphological, phonological, orthographic, and pragmatic features in formal language instruction. FFI has been defined by Ellis (2001) as "any planned or incidental instructional activity that is intended to induce language learners to pay

attention to linguistic form" (pp. 1-2).

Although FFI is a highly complex phenomenon which extremely varies depending on different instructional contexts, Ellis (2012) points out some pedagogical implications, which might be applicable to CBI. First, "FFI needs to assist learners to understand the connection between specific linguistic forms and their ideational and interpersonal meanings. FFI that focuses simply on form is unlikely to have any substantial effect on learners' interlanguage development" (p. 303). This could be applied to a perspective of the CLIL vehicular language as 'language through learning' (Coyle et al. 2010). Language through learning is based on the principle that effective learning is likely to take place along with the active involvement of language and thinking. Second, the linguistic targets of instruction should be those linguistic features that are known to be problematic to the learners being taught. Some linguistic features could be acquired incidentally, while others are not. Thus, within a limited teaching time in content-based instruction, efficient instruction requires to identify those linguistic features that will not develop at all or will develop very slowly without FFI. Third, FFI is ultimate 'interaction', therefore, it is important for teachers "to attend to whether interactions create the conditions that assist acquisition" (Ellis, 2012, p. 304). Indeed, empirical research on form-focused activities during CLIL lessons conducted by de Graaff, Koopman, Anikina and Westhff (2007) shows that teachers facilitate form-focused processing by giving example, using recasts and confirmation checks, clarification requests and giving feedback including peer feedback, all of which are properties of negotiation for meaning, which serves to draw learners' attention to the form-meaning relationship.

Spada and Lightbown (2008) explored the effectiveness of FFI provided in separate (isolated) activities and FFI within the context of communicative activities (integrated) and concluded that both types of instruction can be beneficial. Isolated FFI refers to the instruction in lessons whose primary purpose is to teach students about a particular language feature which the teacher believes students are unlikely to acquire during communicative activities without an opportunity to learn about the feature. In isolated FFI, a specific language feature is to be taught explicitly. Following information processing theory, isolated FFI might be helpful especially for learners who have difficulty in focusing on form and meaning at the same time, because the human mind has limited processing capacity, (Ellis, 1997). On the other hand, integrated FFI refers to the instruction which is likely to occur in classroom activities during which the primary focus is put on meaning; teachers might offer feedback or brief explanations to help students express meaning more effectively or more accurately within the communicative interaction. According to Spada and Lightbown (2008), integrated FFI includes various kinds of activities designed to induce learners to process L2 features and both direct and indirect instructions to raise learners' consciousness of their explicit knowledge of L2 features, as well as providing learners with feedback on their performance.

Whether these types of instruction could be beneficial to learners' L2 development, however, depends on the language feature and the learning conditions, such as rule complexity of language features, communicative values, or learner and teacher preference for how to teach or learn about form (Spada & Lightbown, 2008). In addition, in terms of CBI, the integration of content and language is positioned along a continuum that relates to the contexts in which learning and teaching take place, as mentioned earlier. Thus, there is no single model that could be applied in the same way, and the balance between content and language would be determined by different variables in specific CBI settings (Coyle et al. 2010). Nonetheless, whatever the setting is, it is fundamental to focus on both meaning and form, not meaning or form, so that CBI could successfully facilitate learners' second language acquisition.

Sociocultural Theory

At the core of CBI is teacher scaffolding (Lyster, 2018). The major difference between the conventional language instruction and CBI is that while the former is characterized as teacher-centered with metalinguistically rich teacher-led analysis but with limited opportunities for meaningful language use, the latter might be characterized as learner-centered learning with teachers scaffolding and opportunities for meaningful language use to accomplish tasks (Littlewood, 2007; Lyster, 2018). Scaffolding refers to the assistance that a teacher provides to students so that they can understand language and accomplish tasks that might be slightly beyond their current level of development. Thus, while one type of scaffolding might assist students in understanding content presented through their L2, another type might encourage them to productively use L2 and engage with the content. Such scaffolding is essential to successful CBI (Lyster, 2018).

In sociocultural theory, the space for scaffolding is labeled as the Zone of Proximal Development (ZPD), which is defined as "the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers" (Vygotsky, 1978, p. 86). Aljaafreh and Lantolf's (1994) research conducted to university ESL students shows a number of mechanisms of effective help in language learning within learner-tutor interaction. They claim that learning depends crucially on mediation provided by other individuals and corrective feedback should be relevant and be appropriated by learners to modify their interlanguage systems; therefore, the ZPD should not only be graduated but also contingent. This requires teachers' continuous assessment of the students' emerging abilities and subsequent tailoring of help to best facilitate progression from other-regulation to self-regulation (Lantolf, Thorne, & Poehner, 2015). In other words, students need to develop increasingly more advanced comprehension strategies that enable them to process the target language autonomously without the scaffolding, so that teachers

need to engage in a sensitive balancing act of providing just the right amount of support to make the target language comprehensible, while being demanding enough to ensure that learners engage in higher-order cognitive skills.

From the perspective of internalization, the sociocultural theory claims that learners not only benefit from the scientific knowledge that explicit knowledge affords them but, in fact, need access to knowledge emerged from automatized explicit knowledge for development to take place (Ellis, 2012). For the knowledge to be conceptually organized, Swain, Lapkin, Knouzi, Suzuki and Brooks (2009) claims, based on their research on the effectiveness of languaging (i.e., a form of verbalization used to mediate the solution(s) to complex problems and tasks), that learners should be provided with (a) coherent knowledge about the concepts underlying the use of the target language; (b) appropriate mediational tools (e.g., explanatory texts, diagrams) to support the internalization of these concepts; (c) opportunities to engage in languaging, so that conceptual understanding mediates their subsequent linguistic performance; and (d) opportunities to put to use the conceptual knowledge that has been internalized (p. 22). In CBI, content is related to learning and thinking, which enables learners to create their own interpretation of content which also must be analyzed for its linguistic demands. This might allow learners to engage in the developmental process whereby they gain the internalized self-regulations "with decreasing reliance on external mediation and increasing reliance on internal mediation" (Lantolf, Thorne, & Poehner, 2015, p. 212).

An Application of CBI to Japanese EFL High School Students

CBI crosses a wide range of international contexts and instructional settings both in ESL and EFL contexts, and there is also a wide range of language and content interface continuum depending on its context. In this section, what outcomes of CBI could be observed in a specific EFL context and what challenges might be underlying its implementation are discussed based on Ikeda's (2013) empirical research conducted to the Japanese high school students (16-17 years old) with lower intermediate English proficiency (average B1 with a few A2 or B2 level on the CEFR scale).

Ikeda (2013) detailed a language-driven CLIL course for 80 high school students in Japan. The course was implemented by the teachers who were trained by the researcher in CLIL methodology. The 35-week language-oriented CLIL course was designed so that students gave equal priority to both content (global issued) and language (English knowledge and skills). The skills that the teacher always used during the CLIL course include; teacher-student and student-student interaction to activate students' schemata; providing multimodal input including visuals (photos, video, drawing, etc.) to introduce topics; different kinds of questions related to lower-order thinking skills and higher-order thinking skills to help students understand input and process information actively; plenty amount of pair and group work; teachers' assistance for learning and using subject-

specific terminology; and providing opportunities for spoken output. The year-end evaluation questionnaire revealed that most of the students felt that their learning experience in the course was denser than in regular English lessons. In addition, the CLIL students' written assignments also showed substantial improvement during the year in terms of fluency in writing, lexical diversity, and lexical sophistication. These learning outcomes imply that CBI could work successfully in Japan if the classes are designed and taught by fully trained teachers.

A common finding is that students demonstrate high levels of motivation and satisfaction while improving their comprehension skills and attaining higher levels of communicative ability than students in more traditional instructional settings focused solely on language when the conditions for its implementation are favorable (Lyster, 2018). Favorable conditions for a successful CBI, according to Lyster (2018), include the availability of teacher training and support, instructional resources, and threshold levels of proficiency on the part of both teachers and students. Then, the key factor of the successful outcomes in Ikeda's (2013) research might have been that the course was designed and taught by fully trained teachers under the supervision of the expert. In Japanese secondary education, a potential bottleneck in implementing CBI might involve a lack of qualified teachers, teacher training, and appropriate materials. The levels of proficiency on the part of both teachers and students could also be a concern in EFL context. That is, some students' proficiency level is low so that paying equal attention to both language and content might be too demanding, which in turn demotivates the students. In terms of proficiency of teachers' L2, the MEXT's report revealed that approximately 30 percent of the English teachers are at the English proficiency level of below B2 on the CEFR scale (MEXT, 2011), which implies that there might be limitations for those teachers to provide spontaneous oral feedback to the students' utterance in an effective way. Therefore, in such circumstances, sufficient training programs, appropriate teaching materials, and native language assistants need to be available to compensate for limited teacher language skills.

Conclusion

The paper has investigated the potential benefits of CBI and the driving forces behind CBI by reviewing researches and theories in the field of second language acquisition in terms of scaffolding input, scaffolding pushed output, form-focused instruction and sociocultural theory. First, for input to be beneficial for language acquisition, pedagogical intervention is necessary so that learners' processing could successfully lead to intake. Also, input needs to be comprehensible and richly contextualized so that learners can associate forms with meaning, and new information with their prior knowledge. Second, scaffolding learners' output is crucial so that learners can focus their attention on particular form-functional relationships, because any

grammatical processing involved in comprehension may be different from the system of rules required to produce the target language. The role of output is to enhance already-stored knowledge representation by trying it out and attuning it to more fluent and accurate native-like language production. A good pedagogical intervention in learners' output might be provided when the learners' interlanguage system is most open to change, and this is most likely to be found when the learners are facing the specific problem to convey their meaning. Third, form-focused instruction is necessary especially when efficiency is required within the limited teaching time. Teachers could facilitate form-focused processing by giving examples, using recasts and confirmation checks, clarification requests and giving feedback to draw learners' attention to form-meaning and form-function relationships. Fourth, teachers are required to continuously assess the students' emerging abilities and subsequently tailor their assistance to best facilitate learners' progression. The ideal assistance might be to lessen scaffolding according to learners' development and facilitate their autonomy, while providing tasks demanding enough to ensure that learners engage in higher-order cognitive skills. Language is not acquired soon after it is learned; the knowledge needs to be internalized with the learner exposed to the social and cultural interaction, and subsequently be made available as cognitive resources before the learner can automatically access that knowledge. Teachers could facilitate learners by providing mediational tools such as explanatory texts or diagrams to support the internalization of their explicit knowledge, and opportunities to put to use the conceptual knowledge that has been internalized. Finally, in the present Japanese teaching environment, teacher training and support, instructional resources, and threshold levels of proficiency on the part of both teachers and students are necessary for the successful outcomes in CBI.

Notes

1. Krashen suggests that we *acquire* language with no conscious attention to language form in the same way as children pick up their first language. On the other hand, we *learn* language through conscious attention to form and rule learning. In Krashen's view, improvement in language ability is only dependent upon acquisition and never on learning.
2. Intake is a term, first coined by Corder (1967), referring to particular amount of an input that a learner successfully process and plays a role in language learning. VanPatten maintains that a good deal of acquisition is dependent on learners making appropriate form-meaning connections during the act of comprehension.

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