

Evaluating the Effects of CBI on an English for Medical Students Program

Evaluación de los efectos de la instrucción basada en contenidos (IBC) en un programa de inglés para estudiantes de Medicina

Kathleen Corrales

Universidad del Norte
(Barranquilla, Colombia)

César Maloof

Universidad del Norte
(Barranquilla, Colombia)

Abstract

This study investigated the effectiveness of CBI on the development of oral communicative competence and the causes of this development on a Medical English program in an English as a foreign language context. The participants were 16 Colombian university students between the ages of 17 and 22 from various semesters in their academic medical program. The instruments included classroom observations, learning journals, and interviews. The data was analyzed and categorized in light of the research questions. The analysis showed that students developed their oral and discourse skills in English in a relevant, challenging, and meaningful manner because the approach implemented was based on the integration of language and content. Through these materials that served as models for the students, they were able to activate their prior knowledge, lessen anxiety, raise their self-confidence and become motivated towards language learning.

Key Words: Content-based instruction (CBI); oral proficiency; EFL/ESL; language-teaching methodology; language learning.

Resumen

Este estudio investigó la efectividad de la IBC en el desarrollo de la competencia comunicativa oral y las causas de su desarrollo en un Programa de Inglés para Medicina en el contexto de inglés como lengua extranjera. Los participantes fueron 16 estudiantes universitarios colombianos entre los 17 y los 22 años de edad pertenecientes a distintos semestres del programa académico de medicina. Los instrumentos de recolección incluyeron observaciones de clase, agendas de aprendizaje y entrevistas. Los datos se analizaron y se categorizaron a la luz de interrogantes de investigación. El análisis mostró que el desarrollo de las habilidades orales y discursivas de los estudiantes en inglés fue relevante, exigente y significativo gracias a que el enfoque implementado se basó en la integración de contenidos y lengua. Los estudiantes lograron activar su conocimiento previo, disminuir los niveles de ansiedad, aumentar su autoconfianza y estar más motivados con el aprendizaje de la lengua a través de los materiales que sirvieron de modelo.

Palabras Claves: Instrucción basada en contenidos (IBC); competencia oral; EFL/ESL; metodología de enseñanza de lenguas; aprendizaje de lenguas.

INTRODUCTION

“[It] is most beautiful learning English with this material.” –KR, Journal 1

Content-based instruction fosters a vision of learning that is very different from traditional language-learning models that focus only on the teaching of language forms rather than content. Thus, through this method students are able to develop the skills that enable them to gain access to the increasing amount of specialized first-hand information that is published in English. In addition, this method provides them with many opportunities for language production. The Instituto de Idiomas at Universidad del Norte recognized the potential that content-based instruction has for its undergraduate medical students.

In a focus group study conducted in 2006, administrators, students, and teachers of the English for Medical Students program expressed that they were somehow dissatisfied with the existing program and wanted to make a change. After applying a needs analysis, several changes were made in order to satisfy the future needs of a professional in the medical field as well as the learning needs of the students. The new program has two basic stages. The initial stage includes levels one, two, and three, during which students are expected to acquire general English communicative competencies. The second stage includes levels four and five. These last two levels are based on communicative and content-based instruction where students continue to develop their communicative competencies in the language while at the same time building the academic language skills needed to be successful medical science professionals.

The researchers of the present study decided to assess whether the content-based approach was truly enhancing students' language proficiency. Also, the researchers felt that it would be useful to understand how CBI improves language learning. For this reason, it was decided to undertake the present study with the following research questions:

1. To what extent are medical English students successfully achieving a communicative purpose through a semester of content-based instruction?
2. How does the content-based approach enhance students' language learning process?

STATE OF THE ART

Content-based instruction (CBI) has become increasingly more widespread during the past two decades to meet the needs of language students because of its dual commitment to language and content development. Although it has been used primarily in K-12 settings in native English-speaking countries, recently there has been an increase in CBI implementation in the English as a foreign language context and at the university level.

In CBI, subject matter becomes the organizing principle of the curriculum which allows students to simultaneously learn content and language because the “artificial” separation between language and content is eliminated (Stryker & Leaver, 1997). Language is seen as a medium for learning content and content is a resource for mastery of language (Stoller, 2002); thus, CBI programs present grammar, writing skills, and vocabulary in the context of learning about “something else” rather than learning about language itself. While traditional linguistic skills are not ignored, they are not the focus of the course because CBI proponents claim that “language is learned best as a vehicle of instruction, not as the object of instruction” (Snow, 2002, p. 37).

Besides being based on content, there are other aspects that differentiate content-based instruction from other approaches of language teaching. Firstly, as previously mentioned, the main objective of CBI courses, to varying degrees, includes mastery of both language and

content. Also, similar to English for Specific Purposes (ESP) courses, in CBI programs the needs of second language learners are accommodated. This means that topics are relevant to the students and the class activities represent something they will need in the future (Brinton, 2000). Finally, another feature that all CBI programs share is the use of authentic language and tasks. In the literature, the word “authentic material” means that the core material used in class is selected from that which was produced for native language speakers and not made specifically for language learners (Stryker & Leaver, 1997). However, with the advent of globalization and the rise of English as the international language, we have broadened the term “authentic” to mean material which is used for the purpose of communicating ideas and not for the purpose of language teaching. This means that texts would be considered “authentic” even though the writer and audience may not be native English speakers (as can be seen in academic articles published in journals all over the world).

There are several different models of content-based instruction such as theme-based, sheltered, adjunct, area studies, etc. The theme-based model is one of the traditional models of CBI described by Brinton, et al (1989) and is a course based around a topic or theme with subtopics or several modules that contain various themes. While not the only model of CBI that exists, it is one of the most widespread in the English as a Foreign Language sector. The medical English program at this university is based on this model.

Effectiveness of CBI

In the literature on content-based instruction, this model has been shown to be very effective. First, research on CBI programs has shown that learners have higher language gains than in alternative L2 teaching approaches. Stryker and Leaver (1997) cite several content-based foreign language programs that were shown to accelerate language proficiency. Data from the Foreign Service Institute’s Russian program showed the percentage of students reaching a “professional proficiency” level in a ten-month period rose dramatically after a CBI program was introduced. Gains in this program were found in oral proficiency, vocabulary and general discourse competence, and listening comprehension ability. In the CBI Spanish program at Columbia University, students showed an average improvement in speaking and reading scores that were significantly higher than the average of the previous non-CBI program (Stryker & Leaver, 1997). Wesche (1993, p.68) states that in the sheltered and adjunct French and English courses at the University of Ottawa, “the experimental classes consistently show gains on a battery of second language proficiency tests which were comparable or greater than those of similar students in skills-oriented FSL and ESL courses *with more contact hours*” (emphasis added).

Besides increases in language proficiency, when students are held accountable for content-area knowledge, CBI programs have been shown to have gains in subject-matter knowledge also. In programs such as the Intensive English Program at Northern Arizona University (Stoller, 2002) and the Foreign Language Immersion Program at the University of Minnesota (Klee & Tedick, 1997), the goals are two-fold: to enhance language proficiency and increase content-knowledge. These programs experienced improvement in both of these areas.

One of the most significant advantages can be found in the affective aspects of the learners involved in CBI programs. Learner motivation in most of the literature on CBI programs has been shown to increase. As Stryker and Leaver (1997, pg. 307) assert: “if the program meets students’ linguistic, cognitive, and affective needs, motivation is enhanced ...” Furthermore, courses are seen as more enjoyable and satisfying (Wesche, 1993). Other students mention that

the CBI course is “fun” and helps them to “learn with less pain,” and the CBI-based curriculum makes the second language something that they “couldn’t help but to learn” (Duri, 1992, p.5).

Evidence from studies on content-based instruction also shows an improvement in students’ self-confidence and a higher self-assessment of their own language skills. Klee and Tedick (1997) report that their students rate themselves as higher in vocabulary, discussion skills, and grammatical knowledge at the end of their CBI course, even though they are not explicitly taught grammar. Other students consider that their language ability has improved, especially in speaking, reading and listening, and they feel more comfortable using the target language, even when tests do not show a significant improvement (Wesche, 1993; Klee & Tedick, 1997).

Causes of CBI’s effectiveness

While much research has been done on CBI, one area that is the most difficult to explain is how the content-based approach supports the aforementioned language, content, and affective gains. The literature on CBI lists several reasons. Firstly, researchers have determined that CBI offers unlimited possibilities for teachers to match the students’ linguistic, cognitive, and affective needs with interesting, relevant, and meaningful input from a variety of sources because CBI material can be taken from any authentic text in any content area (Richards & Rodgers, 2001). Of course, when the needs of the students are met, more learning takes place (Corder cited in Brindley, 1989).

Related to meeting the students’ needs, students express higher motivation when “real issues” become the center of study instead of the “contextual vacuum and boredom” they have experienced in the past (Stryker, 1997; Klahn, 1997). Content-based instruction, with its foundation on subject matter, allows students to study and learn “real” information that is interesting and meaningful to them instead of learning about language. Thus, the increase in motivation and enjoyment that CBI offers has given students a more positive attitude toward learning the second language in general (Wesche, 1993).

Thus, ample literature has attested to the flexibility of content-based instruction and its effectiveness as an approach.

BACKGROUND TO THE PRESENT STUDY

The main objectives of this study were to examine to what extent a semester of CBI instruction supported learners’ ability to achieve a communicative purpose in a foreign language and how this was accomplished. Specifically, the study examined the effects of CBI language instruction on level four medical students’ oral proficiency. It considered the effects on students’ oral production of language, production of various topic types of oral texts, and the choice of appropriate register when speaking. Also, the researchers looked at affective factors and the interaction between learning language through content and content through language.

In order to achieve these objectives, the researchers adopted a qualitative, ethnographic design. Data collection occurred over a four-month period of time where learners from one section of level four medical English participated. This group was chosen because in the Medical English Program at this university, the fourth semester is the first time students had received content-based instruction. The class that was subject to the current research was composed of 16 university students between the ages of 17 and 22 from various semesters in their academic

medical program. This meant that some students had already studied the information that would be covered in this content-based class in Spanish and others had not.

Initially, a background survey was applied to obtain data on the learners' English-language experience. From this information the researchers selected the four members of the class for our focus group, two males and two females. These four students were assessed by the professor/researcher in order to choose one "highly proficient" student, one "middle-level" student, and two "low" students. In two observations and the oral interviews, we focused on these four students. The class as a whole was observed twice and four sets of learning diaries were examined. Thus, the sources of data included:

- Four classroom observations
- Four learning journals (responses written in a mixture of English and Spanish)
- Four semi-structured interviews (conducted in Spanish)

In order to analyze the data, transcripts were made of the observations and interviews and categories were devised. This data was triangulated with the information obtained from the learning journals. Data from these three instruments were examined in order to answer the research questions about the influence of a semester of content-based instruction on learners' oral proficiency and how this language development occurred.

RESULTS

In what follows, the researchers present the most significant findings obtained from examining the data collected. The results show both the areas in which the students improved and how this improvement was achieved. Both of these areas will be discussed below.

Areas of improvement

Throughout the learning journals and interviews, the students mentioned development of several language skills such as reading comprehension, listening, and writing. However, the two most outstanding areas that the learners discuss are speaking and lexis development. This self-assessment of the improvement of speaking is consistent with the results obtained from the presentations. There is a marked difference between Oral Presentation 1 (performed at the beginning of the semester) and Oral Presentation 2 (at the end of the semester) with regard to barriers to fluency such as use of fillers, long pauses, and repetition of syllables, words, and phrases. In addition, when comparing Oral Presentation 1 and 2 in terms of flow, researchers noticed improvement in the tempo of delivery, especially in the students who were considered to have a low fluency level when they entered the class. In these presentations, the researchers noted a development in "textbook grammar," medical-related lexis, and the use of a formal register.

At the same time it is important to highlight that students became aware that "good" academic discourse requires certain units and elements and were able to use them. They improved in their ability to organize themselves better when speaking and used aspects related to discourse such as textual units (introduction, explicit links of different types, and transitions). Additionally, in the journals and interviews the students stated that they had learned both the vocabulary and grammar necessary in order to talk about the functions, processes, mechanisms, composition, position, sequencing, etc. of topics related to anatomy and physiology. The observations of presentations corroborate this information. In the presentation at the end of the

course students were able to produce relatively organized texts related to different types of topics.

Also, participants mention in the learning journals and interviews that they feel that the course based on CBI helped them to become better presenters by paraphrasing information, not reading directly from their papers, and putting more effort into preparing for presentations which they feel can be transferred to other kinds of contexts.

As was mentioned previously, one of the advantages of CBI is that students learn content information. While the objectives of the class under study are not specifically to learn content, it is inevitable that students reviewed and learned new information because the course was based on content. Those students who were in upper levels of their medical academic program mentioned that the material covered in class had helped them to remember content that they had “learned” in the past and reinforced that knowledge. Others, usually those who were in the first few semesters of the medical program, stated that they had learned new information in English which they felt would provide them with the foundations necessary for learning the same content in Spanish in future medical classes. Therefore, we conclude that in addition to language gains, some students also reinforced and learned content.

How CBI supported development

The results obtained from the analysis of the data revealed that the use of CBI had a positive impact on affective areas such as motivation, interest, lowering of anxiety levels, building their confidence, and meeting learners’ specific present and future needs. When looking at the data, we discovered that there is an interesting dynamic between meaningful learning, motivation and interest. Students became motivated because the material presented in class was interesting and meaningful for them since it was related to their area of study. The researchers believe that this dynamic was significant to the development of language. This motivation and interest also translated into a more positive attitude towards the English language for some students who had difficulty learning English in the past. This positive attitude was instrumental not only in making them feel more comfortable in the class, but also this comfort level helped their development of language.

Secondly, it was found that having prior knowledge of some of the topics in Spanish facilitated the comprehension and learning of them in English. This cognitive structure in Spanish seemed to provide some scaffolding for the students and allowed them to deal with language constraints while at the same time enabling them to link the new information to the old. According to constructivist theory, prior knowledge is vital in order to learn anything because it provides “anchors” to which the new knowledge is connected (Ausubel, 1963 cited by Biser, 1984).

From the analysis of the data, the material used in class, such as the English textbook which was made for ESL/EFL students and chapters from authentic anatomy and physiology textbooks, provided them with language models that served for their own output. Because learners received a considerable amount of English input, which was based on content rather than on grammatical structures and language tasks, they were able to develop lexis and improve comprehension skills while at the same time developing their speaking skills.

A final reason for the success of CBI was the methodological aspects of both the CBI approach and those specifically used by the educator in the course under study. Although we did not set out to focus on teacher procedures implemented in class, the students’ comments in their learning journals and in their interviews necessitated the inclusion of this topic.

Close to the heart of CBI is the principle of basing all language material and tasks on content. Thus, unlike general English courses, CBI is not based on grammar, which we found made students feel more motivated and helped them to learn language. Further, the specific methodology and procedures that the teacher used included an emphasis on oral production in L2 such as “read and report”, panel discussions, oral presentations, small- and whole-group discussions, etc. Thus, all of the different activities utilized in class, which helped learners to improve their language skills, were possible because there was meaningful and motivating content to discuss. Unlike other general English teaching methodologies that use isolated and artificial language situations and tasks (e.g., *What is Mike doing? He is painting the fence.*) that students find difficult and uninteresting to discuss, we found through the data that CBI provides multiple opportunities for authentic, meaningful language situations, topics, and tasks.

CONCLUSION

Content-based instruction appears to be an effective language-teaching methodology for this context. Students are able to develop language skills at the same time that they review content. Because of its focus on meaning rather than structure, learners are less worried about making mistakes and concentrate more on expressing their ideas. As students receive input and have opportunities to discuss, they gradually increase their oral skills until they are capable of expressing those ideas in a relatively smooth, steady stream of oral language that is coherent.

The various authentic materials provide models for language imitation. Also, they give input for students to develop discourse organization, technical lexis, and “textbook” grammar which support their use of a formal register when asked to speak in an academic setting. These models help students to recognize and create different topic types of text such as physical structure, mechanism, and process.

This study showed that several factors contribute to making CBI such an effective language teaching method. First, since CBI is based on content that is related to learners’ field of study rather than language, the materials used are interesting, meaningful, and relevant to the students. They feel that the material will help them meet either present and/or future needs. Thus, students are motivated towards the language-learning process, and their anxiety lessens while their self-confidence increases.

One of the most significant factors involved in the success of the CBI approach to language teaching is the interaction that takes place between language and content. As other research has noted and was confirmed in this study, students are able to learn language through content and at the same time learn content through language. Content provides the concepts and the language is the vehicle through which that information is learned, conveyed, and used. This means that inside the content learners find not only concepts that they learn, but also lexis, structure, and language models. As students work with that content they seem to grasp knowledge and develop language. In the context of this current research, it was found that some of the content served to activate the students’ prior knowledge which facilitated the learning of new language and helped them to deal with language challenges. Thus, as Stryker and Leaver (1997) suggest, this interaction erases the “artificial” separation between language and content, allowing students to develop both areas. This interaction makes CBI a unique and highly effective approach to language teaching and learning.

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BIODATA

Kathleen Corrales (M.A. TESOL, M.Ed. Cognition) currently teaches English at the Instituto de Idiomas at Universidad del Norte and serves as Assistant Academic Coordinator, Extension Program. She previously taught content-based English, science, and reading to public school ESL students in the Washington, D.C. area. She also has worked in content-based course and materials design. Her research areas of interest are second language acquisition, bilingualism, cognition, and content-based instruction.

César Maloof (M.Ed. ELT) teaches English and Spanish as a Foreign Language at the Instituto de Idiomas at Universidad del Norte. Currently, he is the coordinator of the content-based Medical English program (levels 4 and 5). He also has worked in content-based course design. His research interests include content-based instruction and computer assisted language learning (CALL).