Content-Based Instruction: Can it Help Ease the Transition from Beginning to Advanced Foreign Language Classes?

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Abstract: *This article examines content-based instruction as a possible strategy for easing students' transition from beginning to advanced foreign language courses, as well as for developing students' interest in pursuing language study beyond those courses sponsored and protected by an institutional foreign language requirement. Four principal sections organize this article. First, the theoretical underpinnings of content-based instruction are reviewed. In the second section, four common content-based instruction models are outlined and compared. The third section examines recent research findings in content-based instruction and offers advice on how to implement a content-based instruction program in a university context. The final section highlights future research needs.*

Introduction

It is no secret that foreign language enrollments dramatically drop beyond the intermediate courses. According to Lambert's (1989) survey of seventy-five undergraduate institutions, only one out of ten students who begin at the elementary level of a language continues on to advanced courses that are not protected or sponsored by an institutional foreign language requirement.

The drop in enrollments is not a new phenomenon. For the most part, it is a problem rooted in the foreign language curriculum itself, that of the division between beginning "language courses" in which students expect and are expected to acquire some level of foreign language competence, and advanced "content courses" in which such competence is assumed in order to pursue an area of specialized study. Furthermore, most foreign language departments typically structure their requirements for the major, and hence most courses beyond the introductory (first and second year) language sequence remain largely literature-oriented. Thus, students who wish to pursue language study beyond the intermediate level must generally chose from courses organized on the basis of literary genres, periods, and critical approaches regardless of their major or field of interest. Two problems arise from this situation: (1) the distinction between beginning "language courses" and advanced "content courses" creates a language gap, or perhaps more accurately chasm, that students find difficult to cross (Graman 1987; Dupuy and Krashen 1998); (2) a high attrition rate occurs between the basic language sequence and the advanced courses. How can this dual problem of articulation and attrition be alleviated?

While the provision of additional course options may help somewhat to alleviate the attrition problem, it does nothing to address the problem of articulation. Any serious consideration of the revision of the undergraduate foreign language curriculum must call into question the constraints and assumptions that created the articulation and attrition problem in the first place

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and continue to plague most foreign language departments: (1) that a language can be taught and acquired in the first year or two of study; (2) that students can learn a language in those first two years granted that they are well taught and studious; (3) that literature and linguistic faculty need only to devote their time in class to teaching their specialty after that first year or two.

It is a fact that the amount of language that can be acquired in a classroom with one or two years of study is limited. Generally, beginning foreign language courses focus on the development of what Cummins (1984, 1992) has described as social language proficiency, which consists of basic interpersonal communicative skills (BICS) used in a contextualized, informal, and cognitively undemanding environment. It is thus not surprising that students in the United States report difficulties in making the transition from language courses to content courses in which they are required to use the more decontextualized, formal, and cognitively demanding academic language needed to communicate ideas and thoughts orally or in writing.

Content-based instruction (CBI) (i.e., teaching a content area in the target language wherein students acquire both language and subject matter knowledge) has emerged as a viable way to address the language competency / language use gap that many students experience when taking advanced foreign language courses. The integration of language and content has been justified on both theoretical and programmatic outcomes. In the first section of this article, the theoretical underpinnings for CBI will be examined. Next, four prototype CBI course models currently used in foreign language settings will be outlined and compared. A review of the research that has evaluated postsecondary programmatic outcomes will then follow.

We have included several studies related to English as a Second Language (ESL), because they can inform CBI applications in foreign language teaching. English for Specific Purposes and English for Academic Purposes in particular are prominent sources of relevant data: These are, for the most part, courses designed for adult students with real-world vocational, professional, or academic demands. We have also included a few studies conducted at the Foreign Service Institute (FSI) and the Defense Language Institute (DLI), where courses are also taught for specific purposes. Although FSI and DLI courses are intensive in nature and the number of hours students in these programs devote to language study far exceeds that of any regular university student, the research findings help to convey the impact that CBI can have on language and literacy development, and attitude toward foreign language study. In the majority of cases, however, the findings reported in this article come from university-based foreign language studies.

On the basis of the data presented, an assessment of the potential of CBI and its various models for easing student transition from beginning to advanced language classes in foreign language programs at the university level will be made. Advice with respect to implementing CBI in this context will be then offered. Finally, future research needs will be highlighted.

Content-Based Instruction: Theoretical Underpinnings

From a theoretical perspective, CBI directly integrates many recent findings from several research areas.

Second Language Acquisition Research

It has been suggested (e.g., Krashen 1985a; 1985b; Savignon 1983; Snow 1993; Wesche 1993) that a second language (L2) is most successfully acquired when the conditions mirror those present in first language acquisition: that is, when the focus of instruction is on meaning rather than on form; when the language input is at or just above the competence of the student; and when there is sufficient opportunity for students to engage in meaningful use of that language in a relatively anxiety-free environment. While controversy still exists as to whether new, comprehensible, meaning-bearing input is a sufficient condition for acquiring accurate speaking and writing skills in the target language, there is considerable research evidence indicating that it is a necessary one. High levels of competence can be reached in classrooms where the target language is a medium of communication rather than an object of analysis (Genesee 1991; Larsen-Freeman and Long 1991). CBI meets all the above conditions.

- In CBI, the curriculum-organizing principle is subject matter, not language. The content-based class is a language class where every effort is made to ensure that subject matter is comprehensible to students. What this means is that pedagogical modifications in CBI courses take into account the language competence of the students, their needs and interests, and subject-area knowledge. These modifications ensure a supportive and language-rich classroom environment, and they are necessary for effective simultaneous teaching of language and subject matter. In the content-based class, students are tested on content, not language; thus the focus is always on meaning, not form. Knowing that they will be tested on content, students will not be tempted to review their grammar and memorize long lists of vocabulary words, but rather will listen closely to lectures, participate in discussions, do topic-related readings, and acquire a great deal of language in the process (Krashen 1991).

- In CBI, instructors make every attempt possible to shelter input so that it will be comprehensible to students. Native speakers of the L2 are generally excluded from the classroom, which ensures that instructors will speak at a language level comprehensible to the

non-native speaker. When addressing non-native speakers, instructors make speech adjustments, which often include simplification, well formedness, greater formal explicitness, and added redundancy. Instructors also make use of facial expressions, gestures, and body language to help make input more comprehensible. They rely extensively on graphic organizers such as tables, maps, flow charts, realia, timelines, and Venn diagrams to help students place information in a comprehensible context. Last but not least, they sometimes provide students with readings in their native language for background knowledge. Such a sheltered environment is conducive to a lowering of the affective filter (Krashen 1985a, 1985b).

Cooperative Learning Research

Research (e.g., Shaw 1997; Slavin 1995) suggests that cooperative learning offers students the opportunity for greater participation and use of the target language in less stressful circumstances. Cooperative learning also provides students with a platform for superior work and ideas (Shaw 1997), gives them the support needed for greater self-confidence and motivation, and builds a better attitude toward school and studying.

• In CBI, arrangements that allow students to share responsibility and work together to complete tasks are extensively used. Small group work, team learning, jigsaw reading, and peer editing are among the many techniques CBI calls on, to provide students with ample opportunities to interact, share ideas, test hypotheses, and construct knowledge together in a low-risk forum (e.g., Crandall 1992; Shaw 1997).

Extensive Reading Research

Studies provide evidence that extensive reading promotes language competence and content area knowledge. In L2 contexts, Elley and Manghubai (1983) and Elley (1991) have demonstrated that extensive reading helps students become better readers and writers, develop larger vocabularies, acquire greater grammatical and spelling accuracy, and improve their speaking and listening. Students also develop their self-confidence and motivation (for a review of extensive reading research, see Day and Bamford 1997; Krashen 1989, 1993).

• Extensive reading is an integral part of CBI. Students engage in reading a great deal of material related to the content they study. In CBI, the textbook is not the only text that students use. Cartoons, magazines, advertisements, and brochures are all viable texts for studying the content area. Using a variety of text types not only has the advantage of exposing students to different types of discourse, it also exposes them to alternative sources of information that they can easily access on their own outside the classroom. One main goal of CBI is to promote students' independence and empowerment by expanding the availability of information beyond the instructor and allowing students to select their own texts.

Motivation and Interest Research

Research has found that motivation and interest come, in part, from the recognition that (1) one is actually learning and that (2) one is learning something valuable and challenging that justifies the effort.

• CBI strives to respond to students' needs and interests. For example, CBI courses at FSI focus on area studies as a subject matter because the goal of the program at the institute is to familiarize students with the geography, history, economy, and culture of the area of the world to which students will be sent. At DLI, area studies share priority with military themes because of the specific needs of the student population. In many CBI programs, an action research cycle is in place from the very beginning to allow instructors and students to reflect upon and restate goals as needed.

The various theoretical arguments that have just been presented provide a strong set of rationales for implementing CBI. CBI finds additional support in the actual outcomes of programs that have demonstrated the effectiveness of the language/content combination. Before reviewing these outcomes, we will first examine four prototype models currently used to implement CBI in postsecondary foreign language settings.

Content-Based Instruction: Four Prototype Program Models In Foreign Language Education

CBI has many variations. Some of the most common models in foreign language education at the postsecondary level are second language medium (SLM) courses, theme-based (TB) courses, "adjunct/linked" (AL) courses, and finally foreign language across the curriculum (FLAC) courses.

Main Characteristics of the Models

• *SLM* courses are regular academic courses (history, psychology, political science, etc.) taught in the target language with enrollment limited to L2 speakers. In some cases, a brief weekly period of language instruction can be integrated with the academic course. The academic course remains the focus.[1]

• In *TB* courses, the foreign language curriculum is organized either around a series of selected themes, drawn from across the curriculum, and related oral and written texts; or a major theme with subtopics.[2]

• The *AL* model aims at connecting a specially designed foreign language course for advanced speakers with a regular academic course. The adjunct language course is organized around the content and language as well

as the academic needs of foreign language students in the discipline course.[3]

- In the *FLAC* model, a conscious effort is made to integrate the use of a foreign language as a research tool in selected courses across the entire university curriculum. In this model, students use their foreign language to read and discuss primary sources of infomation and, as such, make meaningful use of their foreign language competence, while enriching their cross-cultural knowledge.[4]

Similarities and Differences Between the Models

The first two models seek to teach language through content. However, they differ in the relative emphasis given to content and to language learning. In SLM courses, students are taught, tested on, and given course credit for subject matter, while in TB courses, students are taught subject matter, but they are tested on language and get course credit for that only. In AL courses, students are enrolled concurrently in a content course and a language course that are paired. Here, both subject matter and language are emphasized. Students receive credit for both courses. FLAC courses have some of the features associated with AL courses; however, they differ from them and from the general CBI model in that their goal is not content-based second language instruction, but second language-based content instruction. While such courses are clearly designed for students to further their development of the target language, their primary purpose is not so much to promote second language acquisition as to enrich disciplinary study. Brinton, Snow, and Wesche (1989) proposed a continuum along which each model represents a specific point: Whereas TB and AL would fall close to the "language class" end of the continuum, FLAC and SLM would fall close to the "mainstream class" end of it.

Differences also exist with respect to the responsibilities assumed by language and subject-matter teachers, and the language competence required of students who enroll in these courses. In SLM courses, discipline professors are responsible for presenting the material through the L2 in ways (see "Main Characteristics of Models," above) that will promote language acquisition. In TB courses, the language teacher is responsible for teaching content. In AL and FLAC courses, the content teacher and the language teacher are responsible for their own courses, as well as for coordinating with each other. The language competence level required of students who enroll in these courses varies. TB courses can be taken at any language competence level. However, due to the complexity and amount of subject-matter material covered in SLM courses, students will need to have already attained an intermediate level, at least, with respect to listening and reading comprehension. The presence of native speakers in the AL content course makes it necessary for L2 students to have high-intermedi-

ate to low-advanced competence levels. In FLAC, students will need to be at an intermediate level in order to read and discuss the content materials.

One question arises here, namely, how do we get students to the level they need for taking a CBI course? In the introductory sequence, instruction is devoted to the development of general communicative ability. Language is a means of communication, not an object of formal study. In the intermediate/transitional sequence, instruction is geared toward the development of academic language proficiency using a CBI model. Students could start this sequence with TB courses in which topics that have been treated in a personal way in the introductory sequence recur, now treated in an academic way. As they move through the CBI sequence, students could start taking AL, SLM, or FLAC courses, which are generally more linguistically and cognitively demanding than TB courses.

The amount of language and content integration may vary in the models described above. However, all four models integrate language and content in some systematic and integral manner and all have the potential, as evidenced by research, to (1) allow students to acquire a great deal of language and learn large amounts of subject matter in record time (see "Research Findings," below), (2) give students the confidence they need to take risks with the language and, (3) motivate students who might have stopped at an earlier stage to continue on to advanced courses.

Research Findings

Only very few controlled empirical studies demonstrating the effectiveness of postsecondary CBI programs have been conducted. The majority of studies are quasi-experimental or descriptive in nature. They have mostly tended to look at student gains in developing the second language and success in learning the subject matter. Student satisfaction as well changes in student attitudes toward the study of the target language have also been examined. Studies have also investigated the nature of the adjustments made in content-based courses and its impact on second language acquisition. Still other studies have assessed which CBI model is best suited for given clienteles and objectives.

All three areas of research are pertinent to the purpose of this article, which is to build a case for CBI as a key element in easing the transition from beginning to advanced foreign language classes and motivating students to continue language study. In this review of the literature, an answer to the following question is sought:

What is the impact of CBI on second language acquisition, subject matter learning, and self-confidence/motivation to continue language study?

With regard to SLM studies, Edwards et al. (1985), Hauptman et al. (1988), and Burger (1989) reported that students in experimental SLM classes consistently made

gains on several language measures that were comparable with or greater than those of similar students in skill-oriented French or ESL classes with more contact hours. All three studies also indicated that students successfully learned the subject matter, as shown through comparisons with students taking these courses in their first language and revealed by final examination scores, final grades, and other measures (see Table 1 for results). In one study (Edwards et al. 1985) where direct comparison was possible (a second-semester psychology course), the students in the SLM section earned course grades and grades on the final exam as high as they had in the first-semester psychology course taken in their first language. In this same study, students reported a drop in L2 anxiety.

Results from TB programs are similar in nature to those just presented for SLM. Several studies report that students in experimental classes made significant pre- and post-gains on a variety of language measures (Corin 1997; Klahn 1997; Klee and Tedick 1997; McQuillan 1996; McQuillan and Rodrigo; 1998; Milk 1990; Peck 1987; Rodrigo 1997; Stryker 1997; see Table 2 for results) and scored comparably or significantly higher than students enrolled in skill-based courses at the same level, even though there was no explicit grammar or other language instruction (Chadran and Esarey 1997; Dupuy 1996; Hudson 1991; Kasper 1997; Lafayette and Buscaglia 1985; Leaver 1997; Schleppegrell 1984; Sternfeld 1992, 1993; see Table 2 for results).

Furthermore, self-report data also indicated that students in the experimental classes perceived significant language gains. Validity and reliability of self-report data is a central issue; however, "triangulation," or the use of sever-

Table 1

SECOND LANGUAGE MEDIUM (SLM) STUDIES

Study Language(s) Subject Matter	Setting	Level	Duration of Study and/or Contact hours	Language Competence		Subject Matter Learning	Self-Confidence/ Motivation
				Comparison to regular L2 groups	No L2 comparison group		
Edwards et al. (1985) *FSL* *ESL* Psychology	Univ. Exp. 1: French Exp. 2: English Ctl. 1: FSL Ctl. 2: ESL Ctl. 3: Psych.	Int.	1 semester 3 hrs/wk	Pre & Post: Exp. Gps made statistically significant gains on all measures Exp. 1 & 2 = Ctl. 1 & 2 in language gains		Exp. 1 & 2 = Ctl. 3 in subject matter gains	
Hauptman et al. (1988) *FSL* *ESL* Psychology	Univ. Exp. 1: French Exp. 2: English Ctl. 1: FSL Ctl. 2: ESL Ctl. 3: Psych.	Int.	1 semester 3 hrs/wk + 30 minutes of tutoring per wk.	Exp. Gps made comparable or greater language gains than Ctl. Gps that had more contact hours		Exp. 1 & 2 = Ctl. 3 in subject matter gains	
Burger (1989) *ESL* Psychology	Univ. Exp. 1: SLM only Exp. 2 SLM + practice Ctl: ESL only	Int.	1 semester 3 hrs/wk	Exp. Gps > Ctl. Gp in overall language competance Exp. 1 = Exp. 2 in writing			

FSL = French as a Second language; ESL = English as a Second Language

Exp. = experimental group; Ctl. = control group.

Table 2

THEME-BASED (TB) STUDIES

Study Language(s) Subject Matter	Setting	Level	Duration of Study and/or Contact hours	Language Competence — Comparison to Regular L2 Group	Language Competence — No L2 Comparison Group	Subject Matter Learning	Self-Confidence/ Motivation
Schleppegrell (1984) *ESP* Economics	Univ. Exp.: CBI Ctl.: Skill-based instruction	Int.	5 wks 3 hrs/wk	Pre & Post: Exp. Gp made significant gains on listening comprehension and writing tests. Exp. > Ctl.			Exp. Gp reported enjoying the course and being motivated to continue studying the target language.
Suozzo (1981) *French* Culture and Civilization	Univ.	Int.	1 semester 3 hrs/wk			Instructor reports that students improved as much if not more than students enrolled in skill-based fourth-semester courses.	
Lafayette and Buscaglia (1985) *French* Culture and Civilization	Univ. Exp.: CBI Ctl.: Skill-based instruction	Int.	1 semester 3 hrs/wk	Pre & Post: Exp. Gp and Ctl. Gp made significant gains in listening comprehension and writing. Exp. Gp and Ctl. Gp made no significant gains in reading comprehension. Exp. Gp made significant gains in speaking. Exp. = Ctl. in listening. Ctl. > Exp. in writing (may be an artifact of the test, which was mostly a discrete grammar test). Exp. > Ctl. in speaking			Exp. Gp was more positive than the Ctl. Gp. Exp. Gp showed greater interest in studying French and intends to enroll in more French courses.
Peck (1987) *Spanish* Social Work and Mental Health	Univ.		7 wks 4 hrs/wk (+ 2 lab hrs/day)		Pre & Post: all students made significant gains on all language measures.		
Hudson (1991) *ESP* Chemical Engineering	Univ. Exp.: CBI Ctl.: Skill-based instruction	Int.		Pre & Post: Exp. Gp made significant gains on three reading tests: reading grammar, comprehension, and Cloze. Exp. > Ctl.			

ESP = English for Special Purpose; CBI = content-based instruction; Exp. = experimental group; Ctl. = control group

THEME-BASED STUDIES (CONTINUED)

Study Language(s) Subject Matter	Setting	Level	Duration of Study and/or Contact hours	Language Competence		Subject Matter Learning	Self-Confidence/ Motivation
				Comparison to Regular L2 Group	No L2 Comparison Group		
Chaput (1993) *Russian* Linguistics Sociology History Literature and the Arts	Univ.	Int.			No L2 Comparison Group		Increased enrollments in the third-year level. Increased enrollments in the fourth-year level come from other graduate departments (from a handful to more than 60.25% of students in the fourth-year level courses).
Sternfeld (1992) *French German Spanish* History, Geography, and Civilization	Univ. Exp. 1, 2, and 3: CBI Ctl. 1, 2, and 3: Skill-based instruction	Beg.	5 quarters 5 hrs/wk	Exp. Gp scored higher than Ctl. Gp in 15 of 24 comparisons.		Students reported learning a lot of information; gaining access to an additional and differing point of view	Exp. students expressed an interest in finding out more about the TL culture(s). A greater percentage of Exp. students (41%) than Ctl. students (3.7%) went on to take upper-division courses.
Sternfeld (1993) *Spanish* History, geography, and civilization	Univ. Exp.: CBI Ctl.: Skill-based instruction	Beg.	3 quarters 5 hrs/wk	Exp. = Ctl. in fluency on reading and listening comprehension. Exp. > Ctl in content on reading and listening comprehension. Ctl. > Exp. in writing (author indicates that it may be an artifact of the test given).		Students reported learning a great deal of subject matter.	Students reported being motivated to further develop their understanding of Hispanic cultures.
Dupuy (1996) *French* Popular Literature	Univ. Exp. = 4th sem. Ctl. 1 = 4th sem. Ctl. 2 = 5th sem.	Int.	1 semester 3 hrs/wk	Pre & Post: Exp. Gp made significant gains on a vocabulary test. Exp. = Ctl. 1 (reached near significance) Exp. = Ctl. 2			Students felt more confident with their French after taking the course. Several went on to major or minor in French.

ESP = English for Special Purpose; CBI = content-based instruction; Exp. = experimental group; Ctl. = control group

THEME-BASED STUDIES (CONTINUED)

Study Language(s) Subject Matter	Setting	Level	Duration of Study and/or Contact hours	Language Competence		Subject Matter Learning	Self-Confidence/ Motivation
				Comparison to Regular L2 Group	No L2 Comparison Group		
Gonzales-Berry (1996) *Spanish* Hispanic Cultures	Univ.	Int.					Major enrollments have increased in 5 years. Had to turn away students because they could not meet the demand.
McQuillan (1996) *Spanish for Native Speakers* Popular Literature	Univ. Exp: CBI Ctl: Skill-based instruction	Int.	1 quarter 4 hrs/wk		Pre & Post: students made significant gains on vocabulary test.		Exp. = Ctl. in confidence and attitude toward reading in Spanish.
Chadran and Esarey (1997) *Indonesian* Area Studies	FSI Exp.: CBI Ctl.: Skill-based instruction (used previous cohort data)	Adv.	36 wks 25 hrs/wk	Students scored higher on oral proficiency, vocabulary, and discourse communication tests than previous cohorts who had not gone through CBI.			Students reported feeling comfortable with using Indonesian.
Corin (1997) *Serbo-Croatian* Area Studies	DLI	Beg.	10 wks 35 hrs/wk		Initially goals were set at S-1/R-1 on the ILR scale. For speaking: 100% of the students reached that level; 35% reached a level 2 or above.		
Klee and Tedick (1997) *Spanish* Culture and Society	Univ.	Int.	1 year 4 hrs/wk		Pre & Post: students made significant gains on a Cloze text, an elicited imitation task, a vocabulary and writing test. Gains on a reading comprehension test reached near significance.	Students reported that they had learned a great deal about Latin American society and culture.	Students indicated that they were more confident in using their Spanish than they did at the beginning.

Exp. = experimental group; Ctl. = control group; FSI = Foreign Service Institute; DLI = Defense Language Institute; ILR = Interagency Language Roundtable;

THEME-BASED STUDIES (CONTINUED)

Study Language(s) Subject Matter	Setting	Level	Duration of Study and/or Contact hours	Language Competence		Subject Matter Learning	Self-Confidence/ Motivation
				Comparison to Regular L2 Group	No L2 Comparison Group		
Leaver (1997) *Russian* Area Studies	FSI Exp.: CBI Ctl.: Skill-based instruction (used previous cohort data)	Beg.	1 year	*Basic Program:* After the intro-duction of CBI, the percentage of students who started at ILR-0 and reached ILR-3 rose from 52% to 83%. The percentage remained close to 90% in the years following. *Advanced program:* Prior to the introduction of CBI, only 18% of the students exceeded ILR-3. After CBI was introduced this percentage reached 42%.			Students were very enthusiastic, and showed disappointment when they had to return to the standard course.
Klahn (1997) *Spanish* Contemporary Mexico	Univ.	Adv.	1 semester 3 hrs/wk	Pre & Post: *Study 1:* Two students went from high int. to adv. high on the ACTFL scale; 4 students went from adv. to sup. *Study 2:* 22 students made 1 full point gain, and 14 made a half point gain on the ACTFL scale.			
Rodrigo (1997) *Spanish* Popular Literature	Univ.	Int.	1 semester 3 hrs/wk	Pre & Post: students made significant gains in vocabulary knowledge. Students reported that reading had contributed to developing their language competence.		A majority of students reported that their confidence with Spanish had steadily increased during the semester.	
Sternfeld (1997) *Italian* Culture and Civilization	Univ.	Beg.	3 quarters 5 hrs/wk			Students found the topics interesting and intellectually challenging.	
Stryker (1997) *Spanish* Area Studies	FSI	Adv.	4 wks 30 hrs/wk	Pre & Post: 30% of the students moved up one point on the ILR scale; 70% moved up a half point in 4 weeks.		Students indicated that they had learned a great deal of subject matter.	Student response was overwhelmingly favorable. Students reported that they felt greater confidence in using the target language.

Exp. = experimental group; Ctl. = control group; CBI = content-based instruction; ILR = INteragency Language Roundtable; FSI = Foreign Service Institute

Table 3

ADJUNCT/LINKED (A/L) AND FOREIGN LANGUAGE ACROSS THE CURRICULUM (FLAC) STUDIES

Study Language(s) Subject Matter	Setting	Level	Duration of Study and/or Contact hours	Language Competence		Subject Matter Learning	Self-Confidence/ Motivation
				Comparison to Regular L2 Group	No L2 Comparison Group		
Snow & Brinton (1988) EAP Psychology Political Science	Univ.	Int.		Exp. Gp.scored significantly higher than Ctl. Gp.			
Ready & Wesche (1992) ESL *French* French, History, Political Science, Psychology, Linguistics, Sociology, English, Psychology, Physiology	Univ.	Int.	1 semester 3 hrs/wk content class 1.5 hrs/wk language course		Pre & Post: students made significant gains on a listening dictation and reading comprehension test.		Students were entusiastic about the approach. They felt more confident and indicated that they would continue taking courses in the target language.
Anderson et al. (1992) Wide variety of language and subjects taught	Univ.	Int.	4 semesters			Students indicated that their overall performance in the content course is enhanced by the FLA component	Students indicated that the FLAC component helped them both in understanding the course material and learning the target language, especially expanding their specialized vocabulary and improving their reading comprehension.
Grandin (1993) *German* Engineering	Univ.	Int.	4 years				Students enrollments have more than doubled. For the first time in history at the University of Rhode Island, students complatnin that junior and senior level classes are too large
Allen at al. (1993) *French German Spanish* Natural and behavioral sciences	Univ.	Int.	1 semester 3 hrs/wk for the content course. 1 hr/wk for discussion of TL material		Students reported that they had been able to maintain their language skills. They cited their expanded and improved TL vocabulary, and perceived strenghtening in their reading comprehension.	Students acknowleged the value of the program, and the greater insight it gives them in the subject matter.	

EAP = English for Academic Purposes; Exp. = experimental group; Ctl. = control group

A/L AND FLAC STUDIES (CONTINUED)

Study Language(s) Subject Matter	Setting	Level	Duration of Study and/or Contact hours	Language Competence		Subject Matter Learning	Self-Confidence/ Motivation
				Comparison to Regular L2 Group	No L2 Comparison Group		
Straight (1997) Wide variety of language and subjects taught	Univ.	Int.	1 semester 3 hrs/week for the content course 1 hr/week for discussion of TL material		Pre & Post: A small but significant increase in reading comprehension.	Students gain knowledge and cross-cultural perspective. They do better in their core course than their counterparts who are not taking FLAC.	Students show increased interest in further language study abroad, and international careers.
Kasper (1997) ESL Variety of subjects	Univ.	Int.		Exp. students scored higher on final exam, and continued to do better throughout the semesters following the experience. They obtained higher grades overall in their mainstream classes and achieved a higher graduation rate than their non content-based course counterparts.			

al data sets to test, corroborate, and elaborate each other, is one way of increasing the validity and reliability of findings. In the majority of studies examined in this article, self-report data is one set of data among others used to assess students' language gains. In several TB studies, students indicated having made gains in speaking, listening, and reading. They also reported increased self-confidence and motivation to continue studying the target language. Students' reactions to these courses were usually overwhelmingly positive, because they felt that they had learned a great deal (see Appendix A). Several TB studies also reported that more students opted to continue their language study after CBI courses had been introduced. Increasing enrollment figures can, on one level, be considered valid indicators of the success of these programs.

Outcomes for AL and FLAC courses support conclusions that are similar to those reported for SLM and TB programs. Students in the experimental AL classes made significant pre-and post-gains on a variety of language measures (Ready and Wesche 1992) and scored significantly higher than their counterparts in skill-oriented classes (Snow and Brinton 1988). Self-report data also indicated that FLAC students noticed significant improvement in their ability to comprehend and use the target language (Allen et al. 1993; Anderson et al. 1993; Straight 1997; see Table 3 for results). They further reported that their participation in such programs had given them an edge and enhanced their overall performance in the regular academic course (see Appendix A). Students often stressed the value of reading primary documents in the target language. Growing enrollments in FLAC courses as well as increased interest in international careers and greater participation in study abroad programs also attest to the success of these programs (Allen et al. 1993; Straight 1997).

In sum, there is evidence that CBI has a worthwhile "payoff" for students at all levels and in a variety of acquisition contexts, including the university. This "payoff" encompasses three broad areas: (1) enhanced foreign language competence; (2) enhanced subject matter knowledge; (3) enhanced self-confidence in their ability to comprehend and use the target language; and (4) enhanced motivation to continue foreign language study beyond the requirement.

Some Objections to CBI

While there is extensive evidence indicating that

students can develop high levels of communicative fluency in classrooms where the target language is a medium of communication rather than an object of analysis, certain scholars have pointed out that students' spoken and written use of the target language often (1) contains morphological and syntactic inaccuracies and lacks precision in vocabulary use, and (2) tends to be sociolinguistically limited to a more formal academic register (Swain and Lapkin 1989; Tarone and Swain 1995). Both of these objections will be examined, and the soundness of the solutions offered by these researchers will be assessed.

Objection 1: The focus on meaning in CBI prevents the development of accuracy in the target language.

Research has demonstrated that prior familiarity with subject matter, coupled with strategies to think about the subject, allows students to rely on concepts familiar in their first language to access those same concepts in the unfamiliar vocabulary and grammar of a second language (Genesee 1987; Sternfeld 1989). In content-based courses, language is adjunct to content emphasis, and certain researchers have argued that the focus on content may deny students the opportunity to develop accuracy in the target language. In order to increase accuracy in students' spoken and written use of the target language, Swain and Lapkin (1989) have suggested that CBI incorporate "the provision of a) focused input in problematic areas of [the target language] grammar ...; b) increased opportunities for the productive use of the target language in meaningful contexts; and c) systematic and consistent feedback about students' use of the target language forms in meaningful contexts." (536) Others yet have questioned whether a focus on form would allow students to produce language more accurately. Indeed, findings about language acquisition in mature students suggest that focus on form yields very low returns in formal accuracy, and that overt remediation, no matter how early it is started, does little to change error patterns (Krashen 1999; Larsen-Freeman 1991). Research on corrective feedback (Lyster and Ranta 1997) and comprehensible output (Swain and Lapkin 1995) has not yet yielded direct evidence that it leads to improvement in language accuracy in the long term.

At students' request, teachers taught grammar and corrected errors in most of the programs reviewed in this article (Chadran and Esarey 1997; Corin, 1997; Sternfeld 1997; Stryker 1997; Vines 1997). In these studies, no formal assessment of the impact of either grammar instruction or error correction on language accuracy was conducted. A few studies (Corin 1997; Stryker 1997) only informally reported that there were "rapid and noticeable increases" in the grammatical accuracy of some students once the grammar component was introduced. Celce-Murcia (1991) reminds us that students may "demand some grammar [and error correction] because of cultural expectations regarding what constitutes language instruc-

tion" (463). She explains that even though some students may benefit linguistically from such instruction, because their cultural expectations have been met to some extent, they may also be more accepting of the other kinds of activities and may then be getting more out of them. It is suggested that formal grammar instruction and error correction, in those cases, might have helped indirectly by lowering students' "affective filter."

Objection 2: Language in CBI is "functionally restricted."

Swain (1988) has also claimed that in CBI, the input is "functionally restricted"; in other words, "certain uses of language seem not to occur naturally — or, at least, to occur fairly infrequently — in the classroom setting" (71). One example is the use of verb tenses. She counted the frequency with which different verb tenses were used in one class and reported that on average over three quarters of the verbs used were in the present or imperative tense. The proportion of verbs in the past tense was approximately 15%; in the future tense, 6%; and in the conditional tense, 3%. Another example is the use of *vous* and *tu* in French. She found that in tests of sociolinguistic performance, students tended to overuse *tu* in situations calling for the *vous*. It appeared that there were very few occurrences of vous where it was used by the teacher as a marker of politeness. Still another example is the predominance of academic language over nonacademic language and the restrictions it puts on peer-to-peer interaction (Tarone and Swain 1995).

Swain proposed two solutions to this problem. One is to "contrive contexts"; in other words, to deliberately introduce contexts that ensure the use of language in its full range. However, this would prove quite difficult to do naturally. A focus on form/function, regardless of the way it is done, puts heavy constraints on what can be discussed. Discussions may remain comprehensible, but they may not remain meaningful and relevant to students. A focus on form/function also assumes that all students are ready to incorporate what is taught, which is very unlikely. The other solution is to expand activities and the range of topics and subjects covered, which would naturally include more forms and functions. The second solution is potentially easier to implement and more interesting for teachers and students. Krashen (1994, 1995) has suggested that an easy and interesting way to provide input in its full formal and functional range is by encouraging free voluntary reading. The research on the impact of free voluntary reading on the development of language and literacy is quite consistent. Many studies confirm that free voluntary reading helps students increase reading and listening comprehension, develop their vocabulary and grammatical competence, and improve their spelling and writing style (see Krashen 1993 for a review). Although it is true that CBI students already engage in extensive reading, this reading is mostly of an academic nature and thus reduced to one

mode of discourse. Tarone and Swain (1995) reported that in content-based programs, adolescents do not have an opportunity to develop peer–peer vernacular and thus resort to vernacular in the first language when engaging in peer–peer social interaction. It is hypothesized that young adult literature or teenage magazines could provide students with good, current vernacular in the target language.

Zuengler and Brinton (1997) have argued that these divergent views of CBI may arise from differences among researchers in their conceptions of or assumptions about the language/content relationship. They maintain that: "If we take the view that form and function are inextricably linked and that their relationship can only be understood within the context of use, we are less able to hold a generic view of language proficiency or language learning as a measurement by which to judge a given content-based class. Instead, we are more likely to view CBI as a potentially rich learning environment for second language learners — specifically as this relates to the acquisition of linguistic form and pragmatic function" (273).

Achieving CBI's Potential Benefits

How is the full impact of CBI to be achieved? It is clear that there is nothing automatic about the amount of language and knowledge students acquire or the level of self-confidence and motivation they develop in CBI courses. Much depends on (1) the appropriateness of a given CBI program for a particular context and the relevance of the CBI program to the language and content needs and interests of its clientele, (2) the selection, preparation, and adaptation of appropriate materials as well as the type and difficulty of assignments and (3) the type of adjustments and accommodations made by the teacher to compensate students' language limitations. Research has started to direct its attention to these key areas and, although there is still much to discover, has yielded some preliminary results.

Choosing a CBI model that best matches the goals for a given student population. When deciding which CBI model to implement, universities and academic units need to carefully think through the goals for their students, involving both students and instructors in making the decision — to smooth the process. If it is the first time that students will be exposed to subject matter in the target language for an extended period of time, as will be the case in a majority of foreign language departments, the TB approach may be the best choice. Having two or three thematic modules in one course may increase the likelihood that students will get excited about acquiring new content knowledge in the target language and realize its usefulness. While content diversity may be desirable, it is advisable to avoid the potpourri problem and opt for related theme modules.[5] Such an approach gives students multiple opportunities to revisit the information presented in earlier modules from a variety of perspectives and promotes better learning.

Selecting a CBI model that is feasible within the school context. A careful evaluation of financial (Wesche 1992), structural, and environmental (Baker 1993) constraints is also critical for universities and academic units considering a CBI program approach. In a university context, where academic budgets are generally tight, bureaucratic levels are numerous, disciplinary turf battles are fierce, and research and publication are rewarded over teaching and advising, models such as SLM, AL, or FLAC may not be the easiest or fastest way to provide CBI in a foreign language. The TB model, however, is more flexible, less costly, less labor intensive, and somewhat simpler to implement that the other approaches, because it can be easily integrated within existing language courses[6] and tailored to meet the variety of competence levels: Beginning (Corin 1997; Leaver 1997; Sternfeld 1992, 1993, 1997); Intermediate (Klee and Tedick 1997; Lafayette and Buscaglia 1985; Vines 1997), and Advanced (Chadran and Esarey 1997; Klahn 1997; Stryker 1997).

SLM courses at the university level require at least an intermediate level of competence (Burger 1989; Edwards et al. 1985; Hauptman et al. 1988) so that students can handle the material and take full advantage of the sheltered strategies, thus furthering their acquisition of the L2 and learning the subject matter. A high intermediate to advanced level of language competence is required for AL courses (Snow and Brinton 1989; Ready and Wesche 1992), because foreign language students are generally mixed with native speakers, and hence the material is very unlikely to be sheltered. The TB model is more user-friendly and more readily adaptable to the ever-changing needs and interests of the heterogeneous audience usually found in foreign language departments.

It is important to remember that the subject matter must be perceived as important, relevant, and useful by students; it is assumed that the material will increase motivation and thus promote more effective language acquisition and content learning.

Matching CBI model, course content, and activities with student needs and interests. The strength of CBI is the natural pairing of language and content, yet it is obvious that CBI places great demands on foreign language students attempting to comprehend subject matter with a still-developing language system. While research focusing on the "interface" (Swain 1988) of language and content is still in the developmental stages, Cummins's work (1984, 1992) is helpful to understanding this relationship as an interaction of contextual and cognitive factors. His conceptualization of language competence along two continua — (1) the range of contextual support available to the student for negotiating meaning and (2) the degree of cognitive demand inherent in the content or the activity — clarifies why students who have acquired basic interpersonal

communicative skills are comfortable in context-embedded, cognitively undemanding communicative situations but are frustrated in context-reduced, cognitively demanding situations until they have developed their cognitive/academic language proficiency sufficiently. One of the major implications of this relationship between language and content is determining the prerequisite competence levels for participation in content-based courses. As suggested earlier, certain models are better suited to certain language competence levels.

Furthermore, a hierarchy of language difficulty posed by certain subject matter and related materials has been identified. Geography is often the topic of choice in the early phase of the content-based courses reviewed in this article. Corin (1997) indicates that geography is a good topic to start with because it is highly visual, spatial, and contextual and can be understood at a relatively low level of competence. It lends itself well to the use of maps, charts, and realia, and the language is highly descriptive. Klahn (1997) too starts with geography in her Contemporary Mexican Topic course. She then introduces topics from literature; the more abstract topics, such as the Mexican world view or U.S.–Mexican relations, come last. Musumeci (1996) indicates that the second year content-based Italian courses at the University of Illinois Urbana-Champaign focus mainly on the human and physical geography of Italy.

Klahn (1997) and Vines (1997) order their activities from the least to the most linguistically and cognitively challenging. In Klahn's class, for example, listening activities typically begin with a video-taped interview on a simple, focused topic directed at a general audience and then progress toward more abstract films, such as Bunuel's *Los Olvidados*. Reading activities start with descriptive narratives and news articles and gradually incorporate poetry and editorials. Similar principles apply to speaking and writing. Students begin with descriptive oral and written reports and move toward sophisticated interpretation, analysis, and debate on controversial topics. While topics and their related activities in the courses just described are initially cognitively undemanding and context-embedded, they become more cognitively demanding and context-reduced as time goes on.

Sheltering language and content in CBI courses is a must. If the selection and sequencing of the topics and materials represent one of the most crucial decisions in a content-based course, an even more critical issue is what the teacher does with those topics and materials (see Wong Fillmore 1985 for a thorough description of the kinds of strategies teachers use to make content instruction comprehensible to foreign language students). Students develop language most successfully when teachers provide outlines of their lectures, deliver them clearly, and make a special effort to spiral and recycle both language and content

to facilitate understanding (see, e.g., Brinton et al. 1989; Corin 1997; Sternfeld 1992, 1993, 1997; Vines 1997; Wesche and Ready 1985).

Others combine this strategy with the use of readings in the students' native language to provide background knowledge (see, e.g., Klee and Tedick 1997; Leaver 1997; Sternfeld 1992, 1993, 1997). Readings in the native language are used to help students build the required background knowledge for coping with authentic materials and to facilitate the learning of new information. However, in no case is the native language used by the teacher as a means of communicating subject matter to the students in class. CBI is instruction that is modified and adapted both in terms of linguistic input and activity design. One critical issue in CBI is teacher selection and orientation. CBI will not work when teachers fail to grasp the methodological concept of the approach and drift toward the extremes of decontextualized language teaching or unadjusted content overload (Klee and Tedick 1997).

In sum, the impact that CBI has on the amount of language and knowledge students acquire, as well as on the level of self-confidence and motivation they develop, will depend primarily on the appropriateness of the CBI model chosen for the specific clientele and context, the relevance of the subject matter taught, and the ability of the instructor to convey the material in a way that enables students to develop the target language as they acquire new knowledge.

Future Research Needs

Does CBI provide a solution for intermediate foreign language teaching at the university? As with any curricular innovation, empirical and analytical research in this area is still limited and only tentative conclusions can be drawn. Nevertheless, the findings available are consistent and compelling, and indicate that CBI has considerable potential and may be part of the solution to the problems of articulation and attrition in foreign language departments.

Students in content-based courses learn equal amount of subject matter as students in L1 comparison classes. Furthermore, they acquire just as much or more of the foreign language as students in regular foreign language classes or students from previous foreign language cohorts. Where no comparison group was used, all students in content-based classes made significant gains in foreign language acquisition. Overall, they showed greater self-confidence and motivation to continue foreign language study.

Preliminary results are, indeed, grounds for encouragement; however, it is clear that well-designed, longitudinal studies are urgently needed. Future programs must systematically evaluate students' language gains and content knowledge. With CBI's dual focus on content and language growth, defining and evaluating student outcomes presents a much greater challenge than with skill-based courses.

Research is also needed to help sort out the various

models that have surfaced in recent years and indicate which instructional techniques and assigned tasks yield the best results. It would be helpful to conduct further research to determine whether CBI can be pushed down to the beginning level or whether it requires at least an intermediate language competence level to work. Common sense tells us that almost any interesting, relevant, and meaningful authentic materials can be used at any level of language competence as long as the tasks students are asked to carry out are appropriate. After all, is that not what sheltering content is all about? If that is the case, implementing CBI in the introductory language sequence would be more than a remote possibility.

Another area for investigation is the qualifications and training teachers need to teach CBI courses. Ready and Wesche (1992) and Klee and Tedick (1997) indicate that attention must be given to these issues if CBI is to succeed.

Some questions have been answered, but others still persist. Ethnographic, diary, and classroom observation research models, which have been extensively used in immersion and bilingual education, may yield answers that other research models cannot.

Conclusion

While an increasing number of college ESL and English as a Foreign Language programs have adopted CBI approaches for their intermediate courses, this approach has largely failed to make its way into their foreign language program counterparts. Some of the beliefs, shared by many in the profession, that help account for this fact are "1) the notion that immersion is most effective, or indeed only effective, with very young learners, 2) that immersion works only when learners have multiple hours of daily contact over a period of many years" (Sternfeld 1993, 182), and (3) that students must be "fluent" before they are ready to study real content.

Yet none of these notions are supported by CBI research to date. Indeed, research findings indicate that adult students (beginning, intermediate, and advanced students alike) in short-term (e.g., one quarter/semester), nonintensive, content-based courses make language gains equal or superior to those of students in traditional language classrooms, and at a much faster pace. They also learn large amounts of subject matter. Moreover, students in content-based courses develop more positive attitudes toward the target language, show increased self-confidence in their ability to use the target language, and express an interest in pursuing its study. Finally, CBI empowers students so that they can become autonomous learners.

It must, however, be noted that the full impact of CBI will not be achieved unless certain conditions are met. The CBI model adopted must be appropriate for the context and clientele involved. The goals and objectives of the CBI program as well as the language and content needs and interests of students must be seriously taken into consideration. Authentic materials in the target language must be readily available, and school libraries will need to maintain the level of acquisitions necessary to support CBI programs. Students must be ready — cognitively, linguistically, and emotionally — for CBI to work, and instructors must be highly proficient in the target language and have a strong understanding and dedication to CBI principles. They must be willing to shelter content, provide students with a variety of activities in which they can purposefully make use of the target language, and avoid excessive error correction in order to maintain the low-anxiety environment conducive to acquisition.

Gonzales-Berry (1996) has asked: "How can we [keep, and] prepare students for advanced study if they are not interested in the basic tenets [literature, culture and writing] of the enterprise?" (35). Evidence suggests that a content-based sequence can serve as a liaison between courses that are more language-focused in the first-year curriculum and more content-focused in the third and fourth years, and thus provide better articulation and retention in the undergraduate foreign language curriculum because students feel better equipped to tackle the material.

Notes

1. See Edwards et al. (1985), Hauptman et al. (1988) and Burger (1989) for examples.

2. See Lafayette and Buscaglia (1985), Sternfeld (1993), and Vines (1997) for examples.

3. See Brinton et al. (1989) and Ready and Wesche (1992) for examples.

4. See Allen et al. (1990) and Straight (1997) for examples.

5. For suggestions on how to implement a theme-based approach and develop theme-based courses, see Stoller and Grabe (1997) and Gianelli (1997).

6. Several CBI models in postsecondary education are described in Krueger and Ryan (1993) and Stryker and Leaver (1997). For CBI courses developed entirely within a foreign language department, Chaput (1993), Sternfeld (1992, 1993, 1997), Vines (1997), and Musumeci (1993a, 1993b, 1996) provide examples of the academic, single-teacher model.

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Appendix A

Students' Opinions of the Benefits of CBI

1. Students report making significant language gains

"I felt that my fluency in Spanish improved in all areas; oral, written, and reading. [...] the course certainly widened the scope of my Spanish vocabulary to include more specialized terminology." (Klahn 1997, 217)

"The switch from the traditional method of learning Spanish by studying disjointed material and literature, to immersion in one topic, allowed us to gain a deeper and more workable knowledge of the language." (Klahn 1997, 217)

"I have enjoyed this class more than other French classes I have taken at I.U. I learned more about the language through the lectures than I would have through grammar. I feel I can speak French better now. I hope this course is continued." (Lafayette and Buscaglia 1985, 334)

2. Students report increased self-confidence and motivation to continue studying the target language

"After having taken this course, I can say that I am comfortable with my Spanish and feel confident enough to use it at my job if needed. My Spanish has 100% improved." (Klahn 1997, 217)

"I doubt very seriously whether I would have had the same result if I had stayed in the regular programmatic course, a rather tedious combination of irrelevant and often useless drills and sporadic use of old articles. It was difficult to muster-up proper motivation. It seemed that the time had come to actually speak Spanish in a more natural environment without the constant 'set-ups' and drill environment." (Stryker 1997, 192)

3. Students react positively to CBI courses

"Discussions in class were typically interesting and intense, putting the course on a par with most of my English-language ones in terms of the amount of knowledge students gained and the quality of intellectual analysis they undertook." (Klahn 1997, 217)

"The fact that Spanish was used as a medium for learning other things, rather than as an object of singular study itself, made it highly interesting and relevant to our professional needs. We learned both subjects: Mexico and Spanish. Essentially, we got two courses in one and each served to reinforce the other." (Stryker 1997, 188)

"I thought that this French class was unique and I preferred it to other type of French classes because of its utility. I believe that my French has improved and that I understand more about the French people and their culture."; "I honestly can say that I'm glad that I stayed in this section. At first, I was skeptical, but as the semester progressed my skepticism disappeared. It made learning French a lot more fun and I did learn many interesting things about France and its people. I wish all of my other French classes had been as great as this one." (Lafayette and Buscaglia 1985, 334)

4. Students report that participating in a CBI course gave them an edge

"Often in the AFLC (Applied Foreign Language Component) meeting we discussed more elaborately the topics that were pertinent to the (regular disciplinary) course." (Anderson et al. 1993, 111)

"I gained more insight into the readings." (Anderson et al. 1993, 111)

"It helped me focus on what was essential in the course, and, in general, aided my preparation for and participation in the regular class sessions." (Allen et al. 1993, 157)