NFLC
Reports

Content-Based
Instruction:
Defining Terms,
Making Decisions

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The National Foreign Language Center
Washington, D.C.

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This paper is part of a series of NFLC Reports based on the research of scholars while they were fellows or adjunct fellows under the Mellon Foundation program at the National Foreign Language Center. The NFLC prints and distributes these articles on a variety of topics related to foreign language research, education and policy. The research Reports are intended to serve as a vehicle of communication and a stimulant for discussion among groups concerned with these topic areas. The views expressed in these papers are the responsibility of the authors and do not necessarily reflect the views of the NFLC or of The Johns Hopkins University.

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Content-based Instruction: Defining Terms, Making Decisions

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T he integration of language and content instruction has been a growing phenomenon in the language field since the early 1980s. Programs, models, and approaches have proliferated at all levels of instruction, from elementary schools through postsecondary levels, bringing with them a diverse nomenclature to identify instructional settings where language and content are integrated. For many second and foreign language educators, the various forms of language/content integration fall under the rubric of *content-based instruction*.

The term *content-based instruction is* commonly used to describe approaches to integrating language and content instruction, but it is not always used in the same way. For example, Crandall and Tucker (1990) define it as "...an approach to language instruction that integrates the presentation of topics or tasks from subject matter classes (e.g., math, social studies) within the context of teaching a second or foreign language" (p. 187). Curtain and Pesola (1994) use the term in a more restricted way, limiting it to only those "...curriculum concepts being taught through the foreign language ... appropriate to the grade level of the students..." (p. 35). Krueger and Ryan (1993b) distinguish between content-based and *form-based* instruction, and note that the term *discipline-based* more appropriately captures the integration of language learning with different academic disciplines and contents.

There is also a variety of definitions of "content." As can be seen from Crandall and Tucker's definition, content is clearly "academic subject matter" while Genesee (1994) suggests that content "...need not be academic; it can include any topic, theme or non-language issue of interest or importance to the learners" (p. 3). Chaput (1993) defines content as "...any topic of intellectual substance which contributes to the students' understanding of language in general, and the target language in particular" (p. 150). Met (1999) has proposed that "...'content' in content-based programs represents material that is cognitively engaging and demanding for the learner, and is material that extends beyond the target language or target culture" (p. 150).

Despite differences in how terms are defined, the diverse characteristics of programs that integrate content and language can be used to determine their position on a continuum that illustrates the relative role of content and language. The continuum is useful in a number of ways. It can highlight how differing definitions of content-based instruction share common features yet are distinguished from one another. It can also suggest key decision points for program planners and implementers, help inform approaches to student assessment, and define roles for teachers and the kinds of teaching skills needed. In this paper, the diversity of definitions applied to programs, models, and approaches will be analyzed to identify what they share and how they differ. In addition, issues such as language outcomes, student assessment, and teacher selection and preparation will be examined.

A CONTINUUM OF LANGUAGE/CONTENT INTEGRATION

All of the programs, models, and approaches that integrate language and content share a common phenomenon: students engage in some way with content using a non-native language. The instructional experiences in which students engage may be placed on the continuum below.

Figure 1

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CONTENT-BASED LANGUAGE TEACHING:
A CONTINUUM OF CONTENT AND LANGUAGE
INTEGRATION

Content-Driven	**Language-Driven**
Content is taught in L2.	Content is used to learn L2.
Content learning is priority.	Language learning is priority.
Language learning is secondary.	Content learning is incidental.
Content objectives determined by course goals or curriculum.	Language objectives determined by L2 course goals or curriculum.
Teachers must select language objectives.	Students evaluated on content to be integrated.
Students evaluated on content mastery.	Students evaluated on language skills/proficiency.

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The continuum provides for a range of programs and approaches that may be primarily content-driven or language driven. In *content-driven programs,* student

learning of content is of greater importance than language learning. Content outcomes are a driving force of instruction, and student mastery of content is held to be of paramount importance. In *language-driven programs,* content is a useful tool for furthering the aims of the language curriculum. Content learning may be considered incidental, and neither teachers nor students are held accountable for content outcomes. Examples of programs that tie across the continuum can be found at all levels of education. A number of these program models are discussed below.

Content-driven programs

The most salient example of a content-driven language program is immersion, an educational model most commonly found in elementary schools where students are educated in a non-native language. The focus of instruction is on content—it is expected that students will master the regular school curriculum, even though they are learning it in a language that is new to them. Elementary school immersion programs depend on parents voluntarily enrolling their children, and few programs would survive if they did not produce expected levels of academic achievement. In total immersion, the entire school curriculum is taught initially through the foreign language, with content instruction in the L1 gradually increasing through the grades; in partial immersion, at least half the school day is spent learning school subjects in another language.

Although immersion programs also aim to produce students with oral and written proficiency in a foreign language, in many immersion programs Little explicit instruction in the foreign language is included in the curriculum. While students do learn to read in the foreign language, and a "language arts" component provides for instruction in some aspects of language (e.g., how to write for a variety of purposes and audiences), there is often little attention paid to the language elements more commonly found in foreign language programs. That is, there may not, be a foreign language curriculum, with defined learning objectives or specific content (functions, vocabulary, grammar, discourse or social competencies, etc.). Rather, the language that students acquire emerges from content instruction and from the day-to-day interactions between teacher and students, or among students themselves. Immersion programs, whether partial or total, are often judged successful based on student attainment of content, and may be deemed effective even though the levels of language proficiency students attain are not native-like (Swain and Johnson, 1997; Genesee, 1994).

Clearly, then, immersion programs, both total and partial, place heavy emphasis on content learning in many subjects and the acquisition of language plays a secondary role. Immersion is therefore positioned at the extreme end of the continuum, and serves as an exemplar for the concept of "content-driven language program."

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Language-driven programs

At the extreme other end of the continuum are language-driven programs. In these programs, language has primacy, and content facilitates language growth. Content learning may be considered a gratuitous but welcome by-product, but neither students nor their teachers are held accountable for ensuring that students learn it. Here, content provides rich avenues for meaningful and purposeful language use (Brinton, Snow and Wesche, 1989; Curtain and Pesola, 1994; Met, 1991). In this program design, content taught in the foreign language enriches or reinforces instruction in the student's native language, but does not substitute for it. In fact, the responsibility for content learning lies with another teacher.
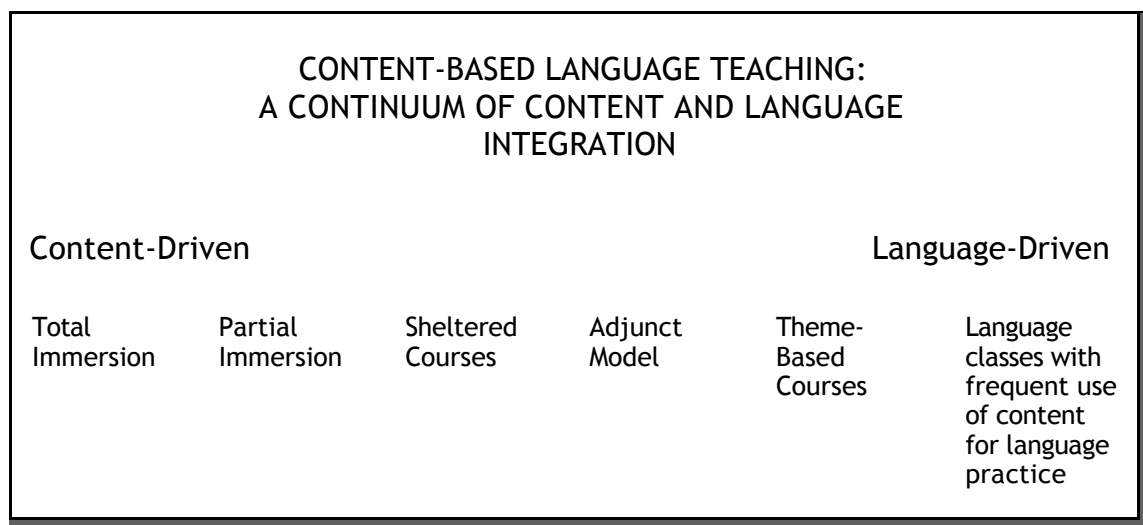
Curtain and Pesola (1994) use the term "content-related" to describe elementary school foreign language programs that...use the regular curriculum as a vehicle for making the language activities more cognitively engaging... [They] reinforce the curriculum and may or may not use content directly associated with the grade level of the students" (p. 149). In language-driven programs, the objectives of the language curriculum drive decisions about how content is integrated with language instruction. Teachers may, but need not, consult with colleagues in other disciplines to determine which, when and how content will be integrated with language. Topics and tasks for language practice may be drawn from many disciplines in a single lesson or unit, with the primary criterion for selection based on their usefulness in furthering language goals. A single language unit on describing homes can draw practice activities from several content areas, such as the social sciences (observing how architectural styles and building materials reflect climate and local resources), and mathematics (determining the cost per square foot/meter of apartments in the local area and in the target culture).

In other language-driven classrooms, teachers may decide to draw on only one discipline—particularly if that discipline is a high priority subject in the school, such as mathematics. For example, an eighth grade language teacher was teaching a unit "Shopping for Clothing." She integrated mathematics by having students calculate the final cost of a pair of jeans that was discounted by 15% and taxed at a rate of 8%. Another elementary school teacher taught the unit "Animals of the World." Because her students were learning the concept of multiplication, the language teacher also integrated mathematics by having students work through story problems that involved animals. ("There are three trees. There are four monkeys in each tree. How many monkeys...?") These language-driven teachers chose to use content-based activities that allowed students to practice the language objectives they were expected to learn while at the same time reinforcing a content area that has high priority in schools. Examples of language-driven instruction are common in elementary school foreign language programs in the U.S. and may also be found in middle schools.

BETWEEN THE EXTREMES

What lies in the range between the extremes of the continuum? We have seen that at either end of the continuum are content-driven programs that place high priority on content learning, and in which language learning emerges from content instruction on the one hand, and language-driven programs, in which language is of primary importance and content a vehicle for developing desired language skills on the other. Other forms of content/language integration include subject courses taught in the second/foreign language, subject courses taught in conjunction with language classes, and theme-based language courses that draw on one or more disciplines to develop language competence. These approaches to content/ language integration are shown in Figure2.

Figure 2

CONTENT-BASED LANGUAGE TEACHING:
A CONTINUUM OF CONTENT AND LANGUAGE
INTEGRATION

Content-Driven   Language-Driven

Total Immersion	Partial Immersion	Sheltered Courses	Adjunct Model	Theme-Based Courses	Language classes with frequent use of content for language practice

Postsecondary institutions have seen explosive growth in programs that integrate language and content (Snow and Brinton, 1997; Krueger and Ryan, 1993b). Brinton, Snow, and Wesche (1989) describe three basic approaches to language and content integration in postsecondary settings: sheltered courses, adjunct courses, and theme-based courses. *Sheltered* courses are subject courses taught in the L2 using linguistically sensitive teaching strategies in order to make content accessible to learners who have less than native-like proficiency. Sheltered courses are content-driven: the goal is for students to master content; students are evaluated in terms of content learning, and language learning is secondary.

In contrast, in the *adjunct* model of language/content integration, both language and content are the goal. Adjunct courses lie at the center of the continuum of content/language integration. Students are expected to learn content material while simultaneously acquiring academic language proficiency. Content instructors and language instructors share responsibility for student learning, with students evaluated by content instructors for subject matter

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mastery, and by language instructors for 'language skills. Unlike sheltered courses, where students are all learning content in an L2, in the adjunct model content classes may be comprised of both L1 and L2 content learners, but language instruction is almost always for L2 learners.

To the right of adjunct courses on the continuum are *theme-based* courses. Theme-based courses are language-driven: the goal of these courses is to help students develop L2 skills and proficiency. Themes are selected based on their potential to contribute to the learner's language growth in specific topical or functional domains. Unlike sheltered courses, which are taught by content instructors, and adjunct courses that are co-taught, theme-based courses are taught by language instructors to L2 Learners who are evaluated in terms of their language growth. Students (and their teachers) are not necessarily accountable for content mastery. Indeed, content learning is incidental. Each of these approaches is discussed in more detail below.

Subject courses taught in a second/foreign language

As we have seen, sheltered content instruction is a form of content/ language integration in which L2 learners are expected to learn content. Content-driven courses in which specific classes are taught through the medium of another language are found in both second and foreign language contexts and may be found at all levels of schooling. Some of these courses are sheltered courses, and others are foreign-language enriched content courses (Allen, Anderson and Narvaez, 1992).

In the Netherlands, Hajer (1996) studied content courses taught in an L2. She describes a program for secondary students in which mathematics, geography and the sciences (biology, chemistry, and physics) were taught in Dutch by subject matter teachers to groups of non-native students.

In the U.S., "sheltered" ESL subject matter classes are designed to enable students to acquire the school curriculum even when taught in a language in which they have limited proficiency. Sheltered classes in subjects such as social studies or mathematics have content learning as their goal, and teachers use a variety of instructional strategies to make abstract concepts and course information accessible to students who lack the level of language proficiency required to master content in mainstream classrooms. Crandall and Tucker (1990) explain that in this form of content-based instruction "...subject matter teachers ...may adapt their instruction to accommodate different levels of language proficiency in their classes... [T]he language teacher acts as a resource for other teachers, and ideally, helps those other teachers to increase the mastery of academic concepts and skills on the part of linguistic minority students" (p. 191). Rosen and Sasser (1997) note that "...[i]n sheltered English content-area teachers

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use a variety of language teaching strategies to enhance understanding of grade- and age-appropriate subject-area concepts" (p. 35).

There are also examples of content-driven subject matter classes in foreign language contexts. In some K-12 settings, students may study one or two subjects through the medium of a foreign language. Students learn the subject matter only in the foreign language—that is, subject matter instruction in the foreign language substitutes for instruction in the native language. (As noted earlier, Curtain and Pesola [1994] define this approach as "content-based instruction.") Unlike immersion, in which half or more of the school curriculum is taught through a foreign Language, selected subjects are studied in the language. Further, as in many immersion programs, there is no explicit language curriculum or defined language learning outcomes—the course subject matter defines the learning objectives. In a few elementary school foreign language programs in the U.S., students learn one or two subjects entirety through the foreign language, and do not learn these same subjects in English. There may be little, if any, explicit language instruction. Because the time available must be spent on providing content instruction, there is minimal time available to devote to language learning per se. Language growth emerges from the subject matter studied.

Sheltered courses at the postsecondary level have been described by Edwards, Hauptman and Wesche (1984), Hauptman, et at. (1988), Wesche (1993) and Baker (1993). Edwards, et al. provide detailed descriptions of a sheltered psychology course taught in French to anglophone students at the University of Ottawa. Baker reports on regular content courses taught in a foreign language by faculty members of the International Policy Studies Division at the Monterey Institute of International Studies. As is true of most content-driven programs, Baker notes that faculty for these courses "...are not interested in 'content-based language instruction'; they are simply interested in 'content"' (1993:122).

Enriched content learning

Foreign languages can also serve to enhance or enrich L1 content learning. Allen, Anderson and Narvaez (1992, 1993) describe a number of content-driven options for integrating content courses with foreign languages at the postsecondary level. In these options, "[t]he goal may not be so much 'content-based foreign language instruction' as "foreign language enriched content instruction"' (1993:59). Options for enriching content courses with foreign language may include full foreign language immersion courses, internships in a community abroad, partial foreign language immersion courses (using the language to complete a significant number of course reading assignments in the L2), directed readings (using the foreign language for directed study projects coordinated by language-proficient faculty drawn from subject matter departments), and limited supplemental course readings in the L2 (Allen, Anderson and Narvaez, 1993:106).

The "'LxC" program at Binghamton University provides a good example of content-driven, language-enriched learning. Assignments based on reading materials in the student's language of choice can replace up to 20% of course assignments. Students who have elected the LxC option meet with language resource specialists in study groups to discuss their assignments in relation to the course content. Language resource specialists are native speakers, international students with expertise related to the courses in which students are enrolled (Straight, 1997). The Binghamton model differs notably from some other postsecondary approaches to language and content integration "...in its exclusive focus on instruction in the disciplinary subject-matter of the LxC-supported course rather than the melding of language-instruction goals...with the pre-existing discipline-specific instructional goals of the supported course" (Straight, 1998, personal communication). An interesting note in light of the continuum presented in this paper is that Straight makes a distinction between content-based language instruction, which he sees as a meld between course content and language outcomes, and "Language-Based Content Instruction (LBCI)," which LxC exemplifies. Straight's programmatic term, LBCI, ties on the content-driven end of the continuum because "...language-instruction aspects of an LxC course exist solely as a means to an end rather than ends in themselves" (Straight, 1998, personal communication).

In LBCI, "[e]xplicit instruction in vocabulary, pronunciation and grammar are seen as facilitative of the content extraction task, and measures of them are seen as diagnostic and formative rather than summative gauges of student learning" (Straight, 1998, personal communication). Because content, rather than language, defines student success "...even students who make little linguistic advance, or whose linguistic skills remain inferior to others in the same course, can rise to the top of the class." (Straight, 1998, personal communication)..

Content-driven, foreign language-enriched courses are also found at the University of Minnesota (Metcalf, 1993). Political science seminars taught in a foreign language allow students to compare news coverage in English with that of the same events in a target language newspaper. Seminars are led by Language-proficient graduate assistants drawn from various disciplines. In addition, one-credit modules linked to courses in history and geography are taught exclusively in the foreign language by faculty drawn from those disciplines.

At Earlham College, Foreign Language Across the Curriculum (FLAC) is a content-driven approach, and is defined distinctly from content-based instruction, which is language-driven. For Jurasek (1993), FLAC is a program design whose "central proposition...is not that students will acquire more second language, but that they will acquire new content, competence, insight, and critical thinking skills" (1993:85). Supplemental readings in a foreign language enrich student understanding of content taught in English. In contrast, content-based instruction "is a progressive new style with new substance within the purview and parameters of...the foreign language department" (Ibid.) These definitions suggest that content-based instruction—which is a language course taught through content—is

language-driven, whereas FLAC, which has content as its primary focus, is content-driven.

Content and language courses

Programs that tie at the center of the continuum are numerous and diverse. The center of the continuum represents programs in which student learning of content and language are Likely to be equally important. An interesting range of approaches to the development of both language and content outcomes for learners ranging from the primary through the tertiary levels can be found in both second and foreign language contexts. Both language and content are priorities in English for Academic Purposes courses and Business French or Business Spanish courses in the secondary and postsecondary settings. English for Academic Purposes allows students to gain the language competence needed to deal with complex and cognitively demanding university coursework but simultaneously provides grounding in the course content itself. In business classes, students not only gain the language skills necessary to conduct business in the language but also knowledge of the skills and concepts related to conducting business in various topical areas. At Eastern Michigan University, "language, business, and economics are equal partners" in the language and international trade degree programs (Palmer, 1993:138).

As noted above, in the adjunct model common in many postsecondary programs, students are expected to learn course content and demonstrate language growth, as well. Language and content may be integrated using a team design, in which a content course instructor works collaboratively with a language instructor (Snow and Brinton, 1988). At UCLA, a summer program for entering freshman links ESL courses with academic courses frequently taken to fulfill university requirements (such as history, political science or psychology). ESL and academic course instructors coordinate course syllabi and instruction to ensure both language and content learning (Brinton, Snow and Wesche, 1989). The adjunct model is also used at George Fox University where a U.S. history course and an ESL course were paired (Iancu, 1997). At the high school level, Wegrzecka - Kowalewski (1997) has described linked ESL and content courses in which instructional themes and coordinated assignments provide opportunities for the mutual reinforcement of language and content.

An equal emphasis on content and foreign language outcomes may be found at the University of Rhode Island. Students may earn a Bachelor of Arts degree in German along with a Bachelor of Science in engineering. Language and content courses are coordinated to ensure that students develop a range of intercultural communication skills, including those needed in the global marketplace (Grandin, 1993).

The adjunct model frequently demonstrates a mutual influence between content and language outcomes: neither one nor the other drives instructional decision-making independently of the other. Because both content and language are priorities, programs with a shared emphasis tie at the midpoint of the continuum.

Theme-based language instruction

Stoller and Grabe (1997:81) suggest that all content-based instruction is theme-based. Theme-based language instruction lies close to the language-driven end of the continuum. In this approach, the language teacher selects a theme from which language outcomes are derived. For Eskey (1997), theme-based instruction adds a missing dimension to traditional approaches to language syllabus design. Where both form-based and notional/functional syllabi focus on rules, rather than on real communication, theme-based language courses give learners an interesting subject to learn or communicate about. Language is used to explore content, and language growth emerges as students need to comprehend or produce language related to content. Brinton, Snow and Wesche (1989:26) note that in "...a theme-based course,...the content is exploited and its use is maximized for the teaching of the skill areas", but for Eskey, that does not mean that theme-based course design begins with a prescribed list of language forms or functions to be learned, but rather with topics of interest to students.

Murphey (1997) describes a range of themes used in a postsecondary EFL program in Japan, from themes closely linked to language (English in Japan) to courses with a broader focus (Language Use in Communication, Computer Literacy, The Origins of American Music). Extensive examples of theme-based instruction in both ESL and EFL are provided in Brinton, Snow and Wesche (1989). Other examples of theme-based foreign language courses that are designed to stretch and refine students' foreign language skills in specific topical areas of professional or academic priority are reported by Leaver and Stryker (1989) and Lafayette and Buscaglia (1985). Leaver and Stryker describe a program in which topics related to professional assignments were taught through a foreign language at the Foreign Service Institute. In that program, language learners engaged in area studies pertinent to the target language. In a similar vein, a culture course for language majors was designed to provide a content-based approach to language development by Lafayette and Buscaglia at Indiana University (1985).

In K-12 ESL programs, teachers may provide instruction "...that adopts the concepts, tasks, and curricular materials from the content areas..." (Crandall and Tucker, 1990:191), although the language teacher may not be responsible for teaching the subject matter itself. Theme-based language instruction may also be found in foreign language courses in Grades K-12; teachers may develop units around themes such as the circus, the environment, or contemporary social issues. In K-12 settings, themes may be selected because they are interesting to learners

and provide rich opportunities to develop language skills. They may also integrate content from other areas of the school curriculum, although not necessarily from the same grade level. Pacesetter Spanish, a trend-setting course developed by the College Board, organizes language learning around six major themes such as youth, the environment, and the arts. Montgomery County (Maryland) has organized its secondary school foreign language curriculum in Levels 4-6 around content themes. Teachers design units based on themes such as social issues (e.g., immigration), history, or the arts. One of the newer textbooks for secondary school Spanish has organized its third year program around themes of interest to adolescents. Students develop language skills while exploring questions such as: "How can we control violence?" "Should community service be required for graduation?'' "How does art communicate to us?" Figure 3 summarizes the range of content-based programs discussed in this paper.

Figure 3

CONTENT-BASED LANGUAGE TEACHING: A CONTINUUM OF CONTENT AND LANGUAGE INTEGRATION				
Content-Driven				Language-Driven
Total and Partial Immersion	**Subject Courses Taught in L2**	**Subject Courses Plus Language Instruction**	**Language Classes Based on Themes**	**Language Classes with Frequent Use of Content for Practice**
	Sheltered classes (Brinton, Snow & Wesche)	Adjunct model (Brinton, Snow & Wesche)	Theme-based courses (Brinton, Snow & Wesche)	Multi-disciplinary activities used to improve language proficiency
	Foreign language-enriched university courses (Jurasek, et al.)	English for Academic/Social Purposes, Business French	Thematic units	Content-related FLES (Curtain & Pesola)
	LxC (Straight)	Content-enriched FLES (Curtain & Pesola)	Area studies (Leaver & Stryker)	
	Content-based FLES (Curtain & Pesola)			

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Program Design and Decision Making

As we have seen, models of content/language integration differ in the degree to which outcomes determine priorities in designing instruction from the general to the specific: units, lessons, tasks and activities. These priorities are likely to reflect the rationale or purposes for the integration of language and content and may include:

- ensuring that non-native students learn the content of the curriculum and are prepared for academic success;
- providing students with the discourse styles and language toots of their field of study or career;
- enhancing language learning by providing motivating topics to communicate about; and
- enhancing language learning by providing meaningful, purposeful language practice opportunities drawn from a variety of topics.

In the following sections the implications of content-driven vs. language-driven programs for instructional decision-making will be examined.

SELECTING CONTENT

In content-driven programs, where student mastery of content is of prime importance, decisions about which content to integrate with language teaching are relatively straightforward. In K-12 ESL settings, content may be predetermined by the regular school curriculum in which language minority students need to succeed. Similarly, in K-12 immersion programs, the content taught through the foreign language is the local school curriculum. In designs such as LxC, FLAC, or EAP, course content is selected based on current course offerings at the institution and priorities for content learning.

When content mastery is a high priority, such as settings where learners are being schooled in a second or foreign language, it is vitally important that students have, or gain quickly, a level of language proficiency commensurate with the demands of the curriculum. Indeed, gaining academic language proficiency is a primary goal of ESL content-based instruction. In the early grades of immersion, the curriculum lends itself well to learning content through hands-on, concrete experiences that allow students to both match language to meaning and gain control over the content itself. In contrast, many programs that integrate language and content for older learners, such as those at the postsecondary level, presuppose intermediate or higher levels of proficiency (Snow, 1993; Wesche, 1993). In addition to language, students' background knowledge plays an important role as a building block for new learning. Prior content knowledge is key to understanding new information and concepts and can facilitate comprehension when content is taught through the medium of an L2 (Brinton, 1997; Eskey, 1997).

In sum, for students who are expected to demonstrate content learning, instructional designs must ensure that the content is accessible to those who must learn it.

While institutional curricula and course offerings may shape the selection of content in content-driven programs, there is far greater flexibility in selecting content in language-driven programs, and therefore, fewer clear criteria for selection. Content must be topics or themes of interest to the learner (Eskey, 1997; Genesee, 1994). Content may be selected to allow students access to a wide range of language that addresses topics of personal or professional interest beyond the narrow range of survival language generally developed in basic language courses (e.g., describing oneself and others or one's personal preferences). However, as Met has argued elsewhere (1998; 1999) content should be cognitively engaging and demanding in order to motivate learners to participate and persist in content-based tasks.

Selection of content may also be determined by the language objectives of the course or curriculum so that it will serve as a rich source of language practice tasks and activities. Teachers can begin with a clear set of language objectives, and then identify tasks and activities that are drawn from the school curriculum in order to provide meaningful and purposeful language practice. For example, if the language curriculum specifies that students will learn the language of comparatives, they can practice the use of comparatives through geography (comparing relative distances between cities in China), science (comparing wind speed and precipitation from different climatic events), mathematics (comparing measurements of objects), or even social issues (the age at which one is considered "adult" or "old" in various cultures). The choice of discipline(s) is made by the language teacher, and will be based on the suitability of the content to the language objectives, the accessibility of the content in relation to the language proficiency of the students, and the degree to which content-based tasks can engage the interests and intellect of the students.

DETERMINING LANGUAGE OUTCOMES

The model of content/language integration determines the language students will learn. When content drives decisions, as is the case in content-driven programs, the language students learn will be shaped by the language of the content. As Genesee (1994) observes, implicit language learning in immersion results from lessons in which content is the focus. While all areas of the curriculum share a core of language in common, each discipline also has its own unique terminology and discourse style. Indeed, initiating L2 learners into the discourse community of a given academic discipline can be a significant objective of content-based instruction (Krueger and Ryan, 1993a; Widdowson, 1993).

Some of the language that emerges from content learning will be high frequency, useful language outside the content classroom; some of it may not be. The language of some disciplines can be more restricted in its usefulness and applicability beyond the classroom walls than that of others. In content-driven programs where content learning is a priority and the language of the discipline is shared within academia, the language that emerges is both useful and important. In contrast, in language-driven programs where the goal may be to communicate in a range of commonly encountered situations and contexts, some content-based instruction may not provide students with high frequency, flexible language skills. Language learned through mathematics and science is likely to be more limited than will be language learned through literature or the social sciences. Mathematics and science use specific terminology that is uncommon in day-to-day social interaction *(quadratic equation, chrysalis, lever)*. In addition, reading mathematics texts is different from reading narrative or expository texts in that strategies such as skimming, scanning and decoding are not appropriate (Reehm and Long, 1996). In contrast, many of the skills and strategies that contribute to success in the social sciences are applicable in other contexts (defining terms, retelling events, requesting information, role-playing, stating and defending opinions). (Short, 1997:219). Some content-based vocabulary such as *labor, party* and *left* may be used both colloquially and academically, and have different meanings in each of these contexts (Bernier, 1997).

While content may shape the language learned in content-driven programs, language determines the content in language-driven programs. Content is selected precisely because it furthers language learning goals, and topics or tasks that are unlikely to result in the attainment of the objects of the language course are simply not selected. Thus, a high school language teacher is unlikely to select aspects of the science curriculum that require students to name the parts of atoms or identify the abbreviations and atomic weights of elements on the Periodic Table unless somehow these help students learn the language objectives of her curriculum.

Several implications suggest themselves if content shapes language outcomes. First, where there is choice of content, as found in program designs from the center to the right of the continuum, program planners should consider the relationship between the language of the content and the language skills they want students to acquire. Second, if content is likely to be predetermined, as it is in immersion programs, then consideration should be given to developing language skills not inherent in the content itself. Snow, Met and Genesee (1989) have suggested a model for planning for language growth in a variety of second and foreign language programs. Careful planning for language development can be useful in ensuring that students gain language competence that will be useful in settings beyond the school itself.

In addition to planning for language outcomes through content teaching, it may be necessary to include explicit language instruction. Explicit language

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instruction may be incorporated into content classes (content-driven models) or provided in a separate class or course (adjunct models). In immersion, explicit language learning may occur when teachers formally teach language arts in the foreign language (Genesee, 1994). Explicit language instruction in content-driven models can serve several functions:

- It can expand the communicative range of students beyond that developed through content-language functions, vocabulary, grammar and competencies at the discourse level.

- Explicit language instruction can also provide for social language development. Social language—the discourse of everyday—may not emerge naturally from learning subjects such as mathematics or science.

- Explicit language instruction can lay the groundwork for success in content learning. An adjunct language course can provide the needed language skills, develop needed vocabulary, or provide additional support through the scaffolding of reading tasks and teaching students to write in the formats and discourse style used in a particular discipline.

- Time set aside for explicit language instruction can also be used to integrate aspects of culture learning, since content-driven programs are so highly focused on content learning that there may be limited attention to other aspects of the language curriculum.

Assessing student progress

What determines student progress in content-based instruction? What are some appropriate approaches to assessing what students have learned? The answers to these questions are likely to reflect course priorities and where on the continuum a program lies. In content-driven programs, it is important to ascertain whether students are gaining mastery over the content. This may be of particular concern if content is important and students are learning it in a language in which they are not proficient. In some programs—such as immersion in the U.S. or content-based courses elsewhere—students will be expected to pass national or state examinations in specific content areas, and those examinations may be administered in the native language.

For example, students in immersion programs in Japan and Spain learn substantial portions of the school curriculum in English or Basque, but are required to take national examinations in Japanese or Spanish. In the U.S., many states and local districts administer performance-based content assessments or standardized tests in English at various grade points, and students are expected to perform well, even though they have learned the content in a foreign language. Indeed, the very success of immersion programs and some content-driven postsecondary courses is

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often weighed in terms of how well students perform academically, with less consideration given to their proficiency in the foreign language (Genesee, 1994; Swaffar, 1.993; Swain and Johnson, 1997).

It is possible that students will know content relatively well, even if they cannot demonstrate the depth of their understanding through language. Since good content teaching uses strategies that allow learners to access content even when their language skills are limited, students may be able to show rather than explain their understanding. To demonstrate their academic progress, students may call on the same strategies that teachers use during instruction, using concrete objects, diagrams, body language, or other paralinguistic supports to convey meaning. For example, students may understand how simple machines work, or be able to carry out complex algebraic tasks, but not be able to explain how they arrived at their answer. Teachers will need to decide when content learning should be assessed independently of language.

In many immersion programs, teachers do not regularly assess language growth at all. They may assess certain language arts objectives (e.g., how to write a business letter), but it is unusual for teachers to have specified language objectives for each marking period of the school year and to assess student progress against these objectives. In fact, in many immersion programs, little format assessment of students' language proficiency is done on a year-to-year basis, and students may not even be evaluated at the end of their immersion experience. Aside from the difficulties of conducting formal language evaluations (concerns about appropriate instrumentation, finding time for one-on-one oral assessments), immersion programs are content-focused, and many parents, consider the program successful even if language outcomes are less than might have been hoped for (Genesee, 1994). Similarly, in many sheltered courses at the postsecondary level, students are evaluated solely in terms of content mastery (Brinton, Snow, and Wesche, 1989).

Often, however, it may be desirable for content and language to be assessed in an integrated manner. The need to verbalize thought frequently requires more precise control over concepts than does demonstrating understanding. Writing requires clear thinking, and helps pinpoint fuzzy understanding. Some advocates of cooperative learning have argued that it is through the verbal interactions of peer teaching that students begin to deepen their own understanding of content (Davidson and Worsham, 1992). Thus, it may be important to require that students in integrated content/language programs be assessed on content through the target language. For example, content learning is the ultimate goal for ESL learners, and academic English is the key to success. For these students, it can be important to assess language and content learning together. In the adjunct model, language and content share equal importance and may need to be assessed together. Weigle and Jensen (1997) suggest that if language and content are assessed on the same tasks, different scoring criteria be used.

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In contrast, teachers are more likely to assess language growth than content mastery in language-driven courses. Since content is a vehicle for promoting language outcomes, teachers and students do not usually feel accountable for content learning. However, some aspects of content may need to be integrated into language assessments. Good and equitable assessment tasks mirror those used for instruction. Since language cannot be used in a vacuum, and must be used to communicate about something, it is likely that language assessment will need to be based on the topics and tasks used in instruction. As a result, while content mastery may not be a focus of assessment in theory, it may be difficult in practice to separate content from language.

Preparing qualified teachers

The integration of content and language may pose unique challenges to instructors whose experience and training may be either as a content specialist or a language specialist. Few faculty have had training in both. Those experienced in content-based approaches to language instruction have noted that there are specific strategies and skills that enhance teacher effectiveness (Cloud, 1998; Lorenz and Met, 1988; Met, 1994, 1989; Majhanovich and Fish, 1988; Short, 1997; Snow, 1997, 1987; Stole, 1997).

Teachers in content-based programs may be content specialists who use the target language for instruction, or language specialists who are using content for language instruction. To be effective in their roles, they will need the knowledge, skills and concepts required for content delivery in a second/foreign language. All teachers in content-based programs have similar professional needs, but the degree to which they will need certain knowledge or skills may vary by their assignment. To be successful, it will be helpful for teachers to be well prepared in the following areas.

Content knowledge. Obviously, it will be hard to teach content if teachers do not know it themselves. While content teachers will be prepared in their own disciplines, it may be particularly challenging for teachers trained as language specialists who may have forgotten, or even may not have learned, the content to be taught. Some language teachers are uncomfortable teaching content in fields they may have struggled with themselves, such as mathematics.

Content pedagogy. There are identifiable strategies that make content instruction more effective. Some content specialists have had no training in pedagogy, particularly at the postsecondary Level. Because learning content in a new language can pose difficulties for students, it is essential that teachers (regardless of their content or language orientation) have a repertoire of strategies at their disposal to give students multiple opportunities to access content in meaningful, comprehensible ways. Language specialists, in particular, will need opportunities to become skilled in content-appropriate instructional strategies if

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they are to teach or use content appropriately. For example, while few secondary school art teachers would deem it appropriate to lecture students as slides of famous works of art paraded on the screen, some language teachers have used this approach when incorporating art into language lessons.

Understanding of language acquisition. All teachers in content-based programs will benefit from an understanding of the processes involved in second language acquisition. Selecting and sequencing appropriate learning experiences wilt be facilitated if teachers understand how language develops in instructed settings.

Language pedagogy. Promoting language growth can and should be done by content-based teachers, even those who work in settings where content, not language, is a primary program goal (Snow, Met and Genesee, 1989). Language learning can be planned as part of every content lesson, and teachers can use strategies drawn from language pedagogy to help students gain language skills. In fact, in doing so, they will further the goals of content instruction, since the better students know the language, the more easily they can learn content through it.

Knowledge of materials development and selection. When students learn content through a new language they will need a variety of instructional materials. Print and non-print resources developed for native speakers may need modification or adaptation. Teachers may also need to develop their own materials. Criteria for selecting and developing materials include accessibility of language, text organization that facilitates comprehension (e.g., headings and sub-headings), availability of non-linguistic supports to meaning (illustrations, graphs, diagrams), and degree of cultural knowledge required for comprehension. In addition, teachers in K-12 settings will also need to be familiar with local regulations that govern the use of commercially produced instructional resources.

Understanding of student assessment. Teachers will need to understand the principles that undergird assessment across disciplines. It will be helpful for teachers to be familiar with a range of assessment options, and the contexts in which they are most likely to provide answers regarding student progress. These options may also need to integrate language and content assessments as well as allow learning to be measured independently.

CONCLUSION

As this paper has shown, diverse program models and designs have emerged that integrate content and language learning. The diversity of approaches reflects the purposes and rationales for using an L2 to learn content, and for using content to learn an L2. The relative priorities given to content, language or both, influence a number of decisions that program and course designers will make: who will teach

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and what teachers will need to know; whether students and teachers will be held accountable for the learning of content or language; how student progress will be assessed, by whom, and for what purposes. While all programs that integrate content and L2 learning may fall under the general rubric of content-based instruction, knowing where a program or course lies on the continuum from content-driven to language-driven can clarify the decision-making process. Clarity in decision-making, in turn, may help to ensure that the choices instructional designers make result in student achievement of learning goals.

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