chapter **1**

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Content-Based Instruction:
Research Foundations

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Content-based instruction has been used in a variety of language learning contexts for the last twenty-five years, though its popularity and wider applicability have increased dramatically in the past ten years. Early versions of content-based instruction (CBI) were used in English for Specific Purposes (ESP) programs, second language immersion programs for K-12 students, early foreign language magnet classrooms, and a variety of second language (L2) vocational and workplace instructional contexts. More recently, content-based language instruction has extended into other settings; it has become a widespread approach in K-12 classrooms (in both first language (L1) and L2 contexts), in university-level foreign language instruction, in various bilingual education contexts in Europe, and in English for Academic Purposes (EAP) programs. In short, the development of content-based language curricula is gaining prominence in a wide range of contexts. A number of factors account for the rise in popularity of CBI.

In discussion of CBI many authors refer to successful program outcomes as evidence of its benefits. They either describe a program that they assert as successful; or they discuss teacher and student interests, program enrollments, and successful student adjustment to later academic careers as support for CBI. In this chapter, it is our intention to extend the discussion by examining an extensive body of research from a wide range of fields which argues, directly and indirectly, for the benefits of content-based learning. The research which supports CBI spans the range from studies in second language acquisition, to controlled training studies, to various strands of research in educational and cognitive psychology. After reviewing empirical support for CBI from these different domains, we will examine the effectiveness of different types of content-based classrooms and programs. These program outcomes provide another source of support for CBI. We will conclude our discussion with a set of rationales for CBI and its various approaches.

SUPPORT FOR CBI FROM SECOND
LANGUAGE ACQUISITION RESEARCH

A major source of support for CBI comes from second language acquisition research, particularly the work of krashen, Swain, and Cummins. Krashen's (1982, 1985)

comprehensible input hypothesis provided an early rationale for the development of CBI in second language contexts. His argument that language is best acquired incidentally through extensive exposure to comprehensible second language input has not only supported the use of CBI but has, in turn, been supported by the successful results of a number of L2 CBI programs. Canadian immersion programs, U.S. bilingual immersion programs, and the University of Ottawa sheltered programs for second and foreign language learners all provide a degree of support for the importance of comprehensible input for L2 development and L2 content learning (Snow, 1993; Wesche, 1993). Students in Canadian immersion programs, for example, when compared with non-immersion students, have demonstrated equivalent subject matter achievement, equivalent L1 language learning, and near-native L2 learning (particularly in comprehension abilities). Even late-immersion programs, with French immersion instruction beginning in the sixth or seventh grades,, have led to the same positive results (Wesche, 1993).

Reassessments of Canadian immersion programs, however, have revealed the limitations of instruction which only promotes comprehensible input. Swain (1988, 1993) provides a more balanced account of integrated language and content instruction in the Canadian context when she points out the additional need to emphasize formal language aspects of the content resources used in immersion contexts. Swain (1985, 1988, 1991, 1995a) has argued -persuasively that students in French immersion programs in Canada, despite many years of L2 French input, develop only limited L2 proficiency in the areas of speaking and writing, making numerous errors in their productive use of French. These results have led Swain to argue that the Canadian CBI immersion programs. are successful in teaching subject matter content and L2 comprehension skills (listening and reading), but are not as successful in teaching speaking and writing. These skills require explicit attention to formal aspects of language output if students are to acquire native-like proficiency (see also Widdowson, 1993).

As a result of the research on Canadian immersion programs, Swain proposed her output hypothesis to address the limitations noted above (Swain, 1985, 1993, 1995b). The output hypothesis argues that student learning depends on explicit attention to productive language skills (i.e., speaking and writing). A more recent extension of the output hypothesis argues for explicit focus on relevant and contextually appropriate language forms to support content-learning activities in the classroom. As a result of these findings, immersion approaches are now giving greater prominence to language learning activities. The combination of focused language instruction and content teaching is a prominent feature of a number of other CBI approaches as well, partly as a result of Canadian immersion evidence and partly as a result of the findings that follow.

Further extensions of the form-content integration for instruction, as distinct from the "form versus content" debate, are discussed by Garrett (1991), Lightbown and Spada (1994), Swain (1995a), and Tarone and Swain (1995). The central argument raised by these researchers is that both form and meaning (content) are important and not readily separable in language learning (see also Halliday,1993; Wells, 1994). All meaningful language communication typically combines formal accuracy and relevant content within every utterance or written sentence. The two components work together to serve communication needs. In particular, students and teachers need to negotiate language form (as well as content), a concept that is reinforced by recent discussions of sociocultural

approaches to second language acquisition, also known as Vygotskian approaches. Such sociocultural approaches are generally consistent with CBI.

Recently, Lantolf and others (Aljaafreh & Lantolf, 1994; Donato, 1994; Lantolf, 1994; Lantolf & Appel, 1994; Lantolf & Pavlenko, 1995; McCafferty, 1994; Schinke-Llano, 1993) have shown that the Vygotskian-based concepts of (a) negotiation in the Zone of Proximal Development, (b) private speech (internally directed speech as problem-solving and rehearsing strategies), and (c) student appropriation of learning tasks are important notions in L2 learning. They are also notions which are readily applicable to CBI contexts. Students in CBI classes have many opportunities to negotiate the knowledge that they are learning (rather than simply interact or exchange information) and to extend their knowledge at increasing levels of complexity as more content is incorporated into the lessons. Moreover, students in content-based classrooms have many occasions to engage in private speech while learning language, sorting out input and rehearsing as they interact with more knowledgeable individuals (Lantolf & Pavlenko, 1995). Finally, students have many chances to develop ways of learning from teachers and peers, thereby appropriating activities, strategies, and content in ongoing cycles of learning. Research on sociocultural approaches to second language learning provides strong support for CBI when such instruction incorporates Vygotskian notions. Similar support emerges from studies of Vygotskian orientations in L1 literacy learning in elementary-school contexts (Moll, 1990; Newman, Griffin, & Cole, 1989; Rogoff, 1990; Tharp & Gallimore, 1988).

A final theoretical support from second language learning for CBI follows from Cummins's (1084, 1989) notion of Cognitive Academic Language Proficiency (CALP). He argues that many L2 students learn Basic Interpersonal Communication Skills (BICS) within a relatively short period of time (approximately two years in school). However, these language skills are not sufficient for students to succeed in academic learning contexts. Instead, students need to develop Cognitive Academic Language Proficiency if they are to succeed in academic second language learning contexts. The development of CALP in the L2 can take much longer, from five to seven years or more (Collier, *1989;* Wong-Fillmore, *1994)*. Postponing content instruction while students develop more advanced academic language is impractical and ignores students' complex educational needs. Students need to be learning content information *while* they are acquiring CALP Moreover, such skills, because they are more academically oriented and require more complex language abilities, are best taught within a framework that manipulates more complex and authentic content. In a sense, the language of CALP is the language of academic content areas. Thus, the need for more demanding language abilities suggests that a CBI approach would be the most effective way for students to develop CALP.

SUPPORT FOR CBI FROM TRAINING STUDIES

A number of instructional approaches have been shown to be effective in classroom training research and are commonly incorporated into CBI approaches. When these approaches are incorporated, their demonstrated effectiveness provides additional support for CBI. In particular, research on cooperative learning, metacognitive/learning strategy instruction, and extensive reading are supported by impressive results and are readily

incorporated within CBI.

Cooperative Learning

Cooperative learning requires that students work together (typically in small groups of four to six) to learn information and carry out a range of tasks. The purpose is to promote peer group support and peer instruction (cf. Vygotskian learning theory). There are a number of approaches to cooperative learning (Fathman & Kessler, *1993;* Stahl, *1994),* though the approaches developed by Slavin and his colleagues (see Slavin, 1995) have the strongest research documentation, with well over 100 controlled experimental research studies.

Slavin's research, in particular, has demonstrated strong improvements in student learning when students work in groups that have structured objectives, have group goals and rewards, promote individualized accountability, and provide each student in the group with equal opportunities for success. In two versions of his approach to cooperative learning, STAD and CIRC (Student Teams-Achievement Divisions, and Cooperative Integrated Reading and Composition), results of classroom training studies consistently demonstrate significant gains for students in cooperative learning classes across a range of student groups and grade levels. In the case of STAD, this cooperative learning approach has demonstrated significant gains over control groups in language arts, math, reading comprehension, geography, history, and ESL. Cooperative learning leads to greater student cooperation, higher motivation for learning, more positive student attributions for learning success, better attitudes toward school and learning, and greater self-esteem (Slavin, 1995). Cooperative learning is consistent with the goals of CBI and is readily incorporated into CBI (see also Crandall, 1993; Fathman & Kessler, 1993).

Metacognitive/Learning Strategy Instruction

Reading strategy research has demonstrated that strategy learning works best when it is integrated, within the regular curriculum as a consistent feature of content and language instruction. Integrating strategy instruction, as discussed here, means more than including lessons that teach important language learning strategies; rather, it refers to teaching curricula in which strategy awareness and development constitute a daily component of all learning activities. Recent research on reading strategies has shown that decontextualized strategy instruction seldom transfers to independent learning contexts and typically is not retained over a longer period of time. However, when strategy instruction is seen as part of daily activities in a subject-area or language curriculum through teacher modeling, student awareness, and teacher guidance, the goal shifts from teaching strategies to developing a strategic reader. Such a goal leads to long-term improvements in strategy use and a gradual transfer to independent learning contexts.

The goals of learner strategy training programs are difficult to carry out, as documented by Duffy (1993a, 1993b), Gaskins (1994), Pressley, El-Dinary, Gaskins, Schuder, Bergman, Almasi, and Brown (1992), and Pressley, Almasi, Schuder, Bergman, Hite, El-Dinary, and Brown (1994); but this approach provides the best opportunity for strategy instruction (Brown, Pressley, Van Meter, & Schuder, 1996; Pressley & Woloshyn, 1995). CBI approaches provide one of the few realistic options for promoting the

development of strategic learners within a language-learning curriculum. The content component of a content-based .classroom provides the extended coherent material into which strategy instruction can be integrated and recycled on a daily basis. Thus, CBI approaches, which promote the importance of strategy learning, provide the curricular resources for development of the strategic language (and content) learner.

Extensive Reading

Research on the advantages of extensive reading shows that reading coherent, extended materials leads to improved language abilities and greater content-area learning. In L1 contexts, Stanovich and his colleagues (West, Stanovich, & Mitchell, 1993) have demonstrated that extensive reading (as "exposure to print") improves reading abilities, vocabulary, and general knowledge (see also Anderson, Wilson, & Fielding, 1988; Nell, 1988). In L2 contexts, Elley (1991) has provided strong evidence that students who engage in extensive reading across a range of topics increase their language abilities in reading, writing, vocabulary, speaking, and listening skills; they also develop greater content knowledge and higher motivation (see also Krashen 1989, 1993). Overall, this reading research provides one of the strongest, cases of skills transfer and the potential benefits of a CBI curricular approach.

SUPPORT FOR CBI FROM EDUCATIONAL AND COGNITIVE PSYCHOLOGY

Though somewhat further removed from the language learning classroom, research in educational and cognitive psychology offers some of the most persuasive support for CBI. The following five research areas (which may be seen as potentially interacting) represent a range of contributions: cognitive learning theory; depth-of-processing research; discourse comprehension processing research; motivation, attribution, and interest research; and expertise research. An extended discussion would be required to explore these contributions thoroughly; we will only touch on these areas to suggest the types of support each provides for CBI.

Cognitive Learning Theory

The research on learning theory proposed by Anderson (1983, 1990a, 1990b, 1993) provides strong support for the Cognitive Academic Language Learning Approach (CALLA) described by O'Malley and Chamot (1990), and it suggests a reasonable learning theory. to explain the effectiveness of CBI more generally (O'Malley, 1990; see also Estes, 1989). Anderson's theory of learning reinforces teaching approaches which combine the development of language knowledge, practice in using language, and strategy training to promote independent learning. In Anderson's ACT* theory, skills (including language skills) and knowledge follow a general sequence of stages of learning from the cognitive stage, to the associative stage, to the autonomous stage. In *the cognitive stage,* students notice and attend to information in working memory; typically they engage in solving basic problems with the language and concepts they are encountering. In *the associative stage,*

errors are corrected and connections to related declarative and productive knowledge are strengthened; the knowledge and skills become proceduralized. Finally, in *the autonomous stage,* performance becomes automatic, requiring little attentional effort, and it is well integrated within a strong network that activates additional information through spreading activation. This final stage frees up cognitive resources for the next cycle of problem solving.

Anderson's ACT* theory provides a strong basis for examining complex skill development; as such, it is a reasonable characterization for academic language learning and a strong learning theory for instruction which integrates attention to content and language (Anderson, 1993; Chamot & O'Malley, 1994; O'Malley, 1990). Although ACT* is a learning theory that can be applied to a wide variety of contexts, its capability for describing complex language learning makes it a strong potential foundation for CBI.

Depth-of-Processing Research

Depth-of-processing research argues that the presentation of coherent and meaningful information leads to, deeper processing, and that deeper informational processing results in better learning (Anderson, 1990a; Barsalou, 1992; Stillings, Feinstein, Garfield, Rissland, Rosenbaum, Weisler, & Baker-Ward, 1987). Numerous features of this research can be directly associated with effective CBI.

First, research reported by Anderson (I 1990a) shows that information which is more elaborated is memorized and recalled better. Research has demonstrated that students' self-generated elaborations (e.g., adding additional phrases to a sentence, continuing a sentence, or forming a "why" question about a sentence) lead to better recall of factual knowledge. Second, when information is closely related to other information in a text, student recall improves (Anderson, 1990a). For this reason, techniques for revealing connections between ideas in texts (e.g., graphic organizers) lead to better informational recall. Similarly, emotional and affective connections increase memory and recall of information. Third, the spaced study of information, rather than a single massive dose, leads to better memory and recall. Spaced study—the recycling of important related information and the efforts made by students to recall and connect prior information—generates multiple access paths in memory and greater connections to other information. The resulting more complex linkages and pathways lead to better learning and recall (Anderson, 1990a).

Overall, these depth-of-processing research findings are consistent with CBI, an approach that, by definition, promotes extended study of, coherent content and relevant language learning activities. Thus, depth-of-processing research provides support for the integration of language and content instruction (see also Menke & Pressley, 1994; Pressley et al., 1992; Woloshyn, Pressley, & Schneider, 1992, for elaborated questioning techniques in L1 literacy contexts).

Discourse Comprehension Processing Research

Research on discourse comprehension processes and text coherence has demonstrated that more coherently presented information, in terms of thematically organized material, is easier to remember and leads to improved learning (Singer, 1990). In particular, text

information that directly defines and supports the topic -Of discourse in the text is easier to learn and recall. Moreover, information that has a greater number of connections to related information promotes better learning. The various ways that information is interconnected also help learners use the information in new situations (Spiro, Vispoel, Schmitz, Samarapungavan, & Boerger, 1987). Finally, research on discourse comprehension has demonstrated the importance of verbal and visual representations of information to improve students' memory and recall (Paivio, 1986; Sadoski, Paivio, & Goetz, 199 1). This line of comprehension research supports the use of graphic organizers and visual representations of content information for improved learning.

These research results provide strong justification for CBI, because one of its major goals is to give students multiple opportunities to work with coherently developed sets of content resources and to revisit that information from a variety of perspectives, including exposure to visual representations of information (see also Grabe, 1995; Mohan, 1986). Moreover, as information is learned and recall is improved, the coherence and relatedness of this information with other content allow for more complex language learning activities and for the transfer of learning to new situations-both primary goals of CBI.

Motivation, Attribution, and Interest Research

Motivation, positive attributions, and interest are critical factors which support student success with challenging informational activities and which help them learn complex skills-two important goals of CBI Research has found that motivation and interest arise in part from the recognition that learning is indeed occurring and that the learning of sophisticated and challenging information justifies the effort. Further, considerable research argues that students who are more motivated, who develop an interest in curricular learning goals and activities, and who perceive themselves as successful and capable students learn more and do better in school (Alexander, Kulikowich, & Jetton, 1994; Krapp, Hidi, & Renninger, 1992; Tobias, 1994; Turner, 1993). In addition, students with high interest and motivation make greater elaborations with learning material, make more connections among topical information, and can recall information better (Alexander, Kulikowich, & Jetton, 1994; Krapp, Hidi, & Renninger, 1992). Thus, motivation and interest also provide an explanation for the relationships between better learning and the depth-of-processing and discourse-processing research discussed above.

In similar respects, interest in content information, and the successes students attribute to content learning (based on past experiences), can lead to powerful intrinsic motivation. As noted by Krapp, Hidi, and Renninger (1992), "situational interest, triggered by environmental factors, may evoke or contribute to the development of long-lasting individual interests" (p. 18). Thus, interest in the content of a course may trigger intrinsic motivation and lead to better learning (see also Crookes & Schmidt, 1991; Csikszentmihalyi, 1990; Csikszentmihalyi, Rathunde, & Whalen, 1993; Dweck, 1989; Renninger, Hidi, & Krapp, 1992). One goal of CBI is to generate interest in content information through stimulating material resources and instruction, leading students to develop intrinsic motivation to learn.

One theory of intrinsic motivation which is relevant to CBI is that of "flow," a theory of optimal experience that is well suited to language learning contexts (Csikszentmihalyi, 1990, 1993; Csikszentmihalyi & Csikszentmihalyi, 1988). Flow is the state of optimal

experiences (happiness) brought about when personal skills are matched by high challenge, leading to a narrowed focus of attention, a total absorption in the activity, a sense of timelessness, and a temporary lack of awareness of personal problems. Such optimal experiences lead to increased learning. In his synthesis of twenty-five years of research, Csikszentmihalyi (1990) outlines consistent features of flow, features that more typically derive from work or learning environments than from leisure-time activities. Eight such features are noted (p. 49):

1. Tasks must have a reasonable chance of being completed.
2. Concentration on the task must be possible.
3. The task has clear goals.
4. The task provides immediate feedback.
5. Involvement in the task precludes worries and frustration from ordinary life.
6. The person is able to exercise a sense of control over his/her actions.
7. A concern for self disappears.
8. A sense of duration of time is altered.

Two important consequences of flow experiences are an increase in intrinsic motivation and an ability to carry out tasks at higher levels of complexity. Csikszentmihalyi (1990) states:

Often children-and adults-need external incentives to -take the first steps in an activity that requires a difficult restructuring of attention. Most enjoyable activities are not natural; they demand an effort that initially one is reluctant to make. But once the interaction starts to provide feedback to the person's skills, it usually begins to be intrinsically rewarding. (p. 68)

The ability to engage in increasingly more complex tasks successfully augments intrinsic motivation and improves learning capacity. Thus, flow, as a theory of motivation with application to language learning, provides a strong rationale for engaging in CBI; CBI, in turn, provides many opportunities for the development of intrinsic motivation.

Expertise Research

Finally, research on the nature of expertise provides support for CBI approaches. Recently, Bereiter and Scardamalia (1993) outlined a theory of expertise that supports many of the features of effective CBI. They argue that expertise is a process in which a learner reinvests his/her knowledge in a sequence of progressively more complex problem-solving activities and gains from the increasing challenges that result. Expertlike learners look for increasing complexity in the tasks they engage in; in the process, learning itself improves. This problem-solving activity also leads students to develop intrinsic motivation, in part because they recognize their own growing expertise in the given domain or content area, and in part because they experience successes with the increasing challenges. Expertlike learners also devote much of their energy in learning to knowledge-building goals rather

than task-accomplishment goals. Good learners want to understand connections between sets of information and are interested in using various strategies for making appropriate connections. In essence, they want to learn how to become good learners. Of course, in the process, they also learn to accomplish tasks, acquire relevant skills, and carry out progressive problem solving.

Bereiter and Scardamalia's discussion of expertise and expertlike learning makes direct connections with Csikszentmihalyi's notion of flow as well as with discourse comprehension research, depth-of-processing research, and Anderson's ACT* theory of learning. A notion that all five lines of argument share in common is the benefit of complexity for increased learning and enhanced motivation. Thus, complexity itself becomes a major theme that can optimize learning in the right educational contexts. Each of the five research perspectives described above emphasizes the need for more complex challenges, reinvestment of skiffs to meet these challenges, and appropriate, educational supports to stimulate optimal learning (Bereiter & Scardamalia, 1993; Carter, 1990). The possibilities for building such motivating yet manageable complexities in language learning are most likely to be developed and maintained through the coherent informational resources used in CBI

Bereiter and Scardamalia also note that the development of complexity in content information and skills acquisition requires an initial foundation of knowledge: a bootstrapping mechanism that will allow students to experience and develop greater intrinsic motivation, more progressive problem solving, and increased learning opportunities. In general, CBI approaches combine coherent and interesting informational resources to create increasing, but manageable, task complexity. Thus, CBI, through the use of a coherent foundation of information, provides the sort of bootstrapping mechanism that the above research perspectives call for.

The various arguments presented here from research in educational and cognitive psychology represent a fairly unusual set of arguments for CBI. The research reported is typically intended to inform learning theories and instructional practices more generally, but the arguments are directly applicable to language learning and, in particular, to academically oriented language learning at almost any grade level. Taken together, these arguments provide some of the strongest rationales for engaging in a CBI approach to language learning.

SUPPORT FROM CBI PROGRAM OUTCOMES

Additional support for CBI follows from the outcomes of actual CBI programs that have demonstrated successes with combined language and content instruction. Although there have been few controlled empirical studies demonstrating the effectiveness of actual CBI programs, the fact that students exit the programs with improved language skills and content-area knowledge attests, at one level, to the success of CBI Teachers continue to explore ways to combine content and language learning because of their belief in the approach. In this section, we review documentation from five instructional contexts which suggests both the strengths of CBI and its wide range of applications. These five areas include K-12 ESL contexts, K-12 foreign language contexts, postsecondary ESL contexts,

postsecondary foreign language contexts, and language across the curriculum contexts.

K-12 ESL Contexts

Numerous discussions of CBI in North American K-12 contexts have appeared in the past ten years. CBI is used in North American elementary school contexts and secondary school contexts with second dialect and ESL students, though the dynamics are quite distinct at the two school levels. In elementary school settings where language and ethnic minority students and/or immigrant ESL students from mixed language backgrounds rep resent a significant proportion of the enrollment, the emphasis on CBI is particularly strong. This emphasis follows in part from Cummins's observations that CALP takes many years to develop (and students cannot wait five to seven years before beginning content learning) and in part from an instructional philosophy favoring integrated skills and conceptually meaningful instruction. There are, at present, few empirical studies of the benefits of CBI over alternative approaches at elementary school levels (cf. Crandall, 1987), though informal assessment mechanisms indicate increased learning and improved motivation for learning. Practical information on implementing L2 CBI curricula at elementary school levels is discussed in a number of recent volumes, including Chamot and O'Malley (1994), Crandall (1987), Enright and McCloskey (1988), Faltis (1993), and Peregoy and Boyle (1993).

In middle schools and high schools, the somewhat more constrained curricular structure creates more problems for CBI as a general goal. However, CBI instruction has been widely employed in L2 secondary contexts, most commonly through theme-based ESL programs and sheltered instruction. These programs seek to build students' knowledge of academic English in an environment in which students are able to function academically and also learn important grade-appropriate content information (Chamot & O'Malley, *1987, 1994;* johannsen, *1993;* Mohan, *1986;* Peitzman & Gadda, *1994;* Short, *1994;* Spanos, *1993;* Tang, *1992,* see also Chapter 5 in this volume). Mohan *(1986)* has argued for the importance of such CBI approaches by pointing out that all content learning is language learning, but not all language learning is content learning because language classes often trivialize content learning (see also Halliday, *1993).* In general, secondary-level CBI efforts are an attempt to provide *both* relevant language skills and serious, relevant content instruction. The growing number of such theme-based and sheltered curricula at secondary levels provides a reasonable source of evidence in support of CBI

An additional CBI approach that has been developed involves the use of one school in a district system as an ESL immigrant school. One of the best known examples of this in the United States is Newcomer High School in the San Francisco area (Stack, *1993).* Students enroll in Newcomer High for six months to one year and receive intensive ESL instruction combined with bilingual (or sheltered) math and social studies, and another elective course. All these classes count toward high school graduation requirements. Other exemplary programs and curricular efforts are highlighted in the proceedings of a recent U.S. Department of Education OBEMLA (Office of Bilingual Education and Minority Languages Affairs) conference (OBEMLA, 1993) which focused on language minority instruction in middle and high school contexts (see, in particular, Castaneda, 1993; Lucas, 1993; Reyner & Davison, 1993; Spanos, 1993).

K-12 Foreign Language Contexts

Foreign language instruction in other countries (primarily European) has also made successful use of CBI, though there is little empirical data as supporting evidence. Historically, the learning of content through a second language (e.g., Latin) has a long history in Europe (Brinton, Snow, & Wesche, 1989; Krueger & Ryan, 1993a). In the twentieth century, L2 immersion CBI was initiated in the USSR in the 1960s, and Western Europe has consistently promoted advanced second language studies that involve some form of CBI. More recently, the push for European union has entailed foreign language instruction, with CBI components, in the K- 12 curriculum in many West European countries. In addition, a number of regions with minority languages have developed bilingual programs that incorporate some form of CBI (Artigal, 1991; Baetens-Beardsmore, 1993, 1994; Byram & Leman, 1989).

In Central Europe, Hungary has recently initiated dual-language secondary schools. Students take one year of intensive language study before enrolling in a number of subject-area courses in their second language over the next four years of secondary schooling (Duff, 1995). Elsewhere, the government of Hong Kong recently endorsed an English immersion program for 30 percent of its students entering secondary school (see Goldstein & Liu, 1994, for a discussion of efforts taken to help students transition from learning content in Chinese to learning content in English). Even in the United States, foreign language CBI in K-12 contexts is regularly practiced. Rhodes (1995) reports that there are 187 total or partial immersion language programs in the United States, and Christian (1995) reports another 182 two-way immersion programs (see also Met, 1993).

Postsecondary ESL Contexts

Research from a number of postsecondary L2 contexts that endorse CBI curricular approaches has indicated improved English language learning, improved student motivation and interest, and successful mastery of content information (Brinton, Snow, & Wesche, 1989; Iancu, Chapter 12 in this volume; Snow, 1991 a, 1993; Snow & Brinton, 1988; Stoller & Grabe, Chapter 6 in this volume). Program evaluations show that theme-based courses, sheltered courses, and adjunct courses all represent appropriate approaches for CBI in advanced L2 learning contexts.

English for Specific Purposes (ESP) and advanced disciplinary English for Academic Purposes (EAP) contexts provide additional support for advanced-level CBI programs. ESP curricula, throughout a history that spans more than forty years, have been designed to teach specific content and language skills to students and professional employees ranging from engineering and medical students to lawyers, business executives, airline mechanics, bank tellers, and hotel employees (see Johns, Chapter 31 in this volume). Although there is typically little empirical, evidence of program success, because ESP programs seldom evaluate program results through" controlled research methods, the available descriptions of various programs indicate that ESP programs achieve their specific purposes on many occasions. Whether such specific accomplishments by students translate into more general second language abilities is a debate that has continued for the past fifteen years (cf. Hutchinson & Waters, 1987; Johns & Dudley-Evans, 1991; Widdowson, 1983).

Nevertheless, the relative degree of success enjoyed by ESP programs supports the use of CBI more generally.

In a related line of instructional practices, advanced disciplinary EAP instruction, typically grounded in the content materials of students' academic majors, provides further evidence of the potential benefits of CBI. Swales (1990) has argued that second language instruction which focuses on students' academic disciplines provides the language and content resources for effective advanced EAP instruction. Swales and Feak (1995) have further argued that such an approach introduces students to the specific discourses of their future professions and motivates students to work with authentic, appropriate, and meaningful language resources. They further argue that such advanced content and language instruction is best developed through extensive use of visual and graphic representations, an approach endorsed by a number of CBI advocates (Grabe, 1995; Mohan, 1986; Stoller & Grabe, Chapter 6 in this volume; Tang, 1992, also Chapter 5 in this volume).

Postsecondary Foreign Language Contexts

Over the past ten years, a number of foreign language. CBI programs and courses in North American universities have been documented. In the case of the Canadian L2 adjunct courses at the University of Ottawa, there is strong empirical evidence of success (Hauptman, Wesche, & Ready, 1988; Wesche, 1993). In this program, L2 students have performed as well as L1 students on subject matter tests and have developed strong L2 academic language skills, particularly in the areas of reading and listening. In many cases, however, the level of success of the programs is established not through empirical data collection but by student attitudes, increased interest and enrollment, and student job placement.

One of the most successful U.S. programs, judging by student job placement and ongoing student interest in the program, is the combined German and Engineering program at the University of Rhode Island; students earn a double major in German and engineering while spending time as interns in a German-speaking engineering company and following a curriculum of sheltered and theme-based CBI courses (Grandin, 1993; Wesche, 1993). A second successful foreign language CBI program in the United States is Eastern Michigan University's Language and International Business program (Krueger & Ryan, 1993a; Palmer, 1993). In this program, students major in a modern language (e.g., Spanish, French, German, or Japanese) and take a combination of theme-based and sheltered courses which emphasize business content. The program has been successful in graduating language majors capable of performing successfully in international business fields.

A number of other programs have successfully used a variety of CBI curricular formats. The Monterey Institute of International Studies integrates international policy studies with language education, typically linking content courses taught in various modern languages with adjunct language-support courses in those languages. The U.S. Foreign Service Institute has successfully used theme-based CBI courses in its intensive training programs. The University of Illinois Italian program has used theme-based CBI courses in its second-year curriculum with considerable success, as measured by sustained interest, high enrollment, and student attitudes (Musumeci, 1993). These programs and others point out the potential strengths -and benefits of CBI for foreign language

instruction in North America (Krueger & Ryan, 1993b; Straight, 1994).

**Language Across the Curriculum
and Related Approaches**

One of the more common sets of arguments in favor of CBI follows from the Language Across the Curriculum (LAC) movement in England in the 1970s. The movement proposed a curricular approach that designated reading and writing as central components of all content-area instruction throughout the school years. This notion has been a source of continuous debate in England, and it has led to a number of related approaches in the United States and Canada: Writing in the Content Areas for secondary grades, Reading in the Content Areas for secondary grades, and Writing Across the Curriculum (WAC) in North American universities. In all four versions of LAC, the goal is to make language/literacy instruction an essential objective in all classes, since all content is learned through language and a focus on language/literacy skills will improve content learning.

In L1 elementary school contexts, many CBI programs are intended primarily to develop literacy skills and help students begin the transition from "learning to read" to "reading to learn. " Particularly in whole language classrooms, teachers work to combine language and content instruction. In L1 secondary contexts, efforts to introduce language across the curriculum, reading in the content areas, and writing in the content areas all have met with some resistance because many subject-area teachers want to maintain strong control over their particular courses and subject matter (Office of Bilingual Education and Minority Languages Affairs, 1993; O'Brien, Stewart, & Moje, 1995). Nonetheless, many schools have developed sheltered curricula for students who have difficulties with the mainstream curriculum, and practical suggestions for the implementation of such programs for L2 students are becoming more readily available (Cochran, 1993; Peitzman & Gadda, 1994; Ruddell, 1993).

Despite the relatively long history of these movements and the strong logical appeal of their arguments, there is little evidence to support the assertion that students learn content better when they read and write about it in greater intensity (cf. Ackerman, 1993; Adamson, 1993; Crandall, 1987; O'Brien, Stewart, & Moje, 1995; Tchudi & Huerta, 1983; Vacca & Vacca, 1993). The phrases "writing to learn" and "reading to learn" have yet to be grounded in empirical evidence. Nevertheless, these notions and the four general movements noted above (LAC, WAC, reading in the content areas, writing in the content areas) have been, and remain, very influential in various CBI efforts as well as in L1 and L2 literacy instruction at all levels. The arguments for these approaches are appealing, but the lack of research support for their claims would suggest that other rationales for CBI may be more persuasive.

CONCLUSION

Content-based instruction is a powerful innovation in language teaching across a wide range of instructional contexts. There is strong empirical support for CBI, and the success of many well-documented programs offers additional support for the approach. Moreover,

numerous practical features of CBI make it an appealing curricular approach to language instruction. This practical aspect is well argued by Brinton, Snow, and Wesche (1989):

> In a content-based approach, the activities of the language class are specific to the subject matter being taught, and are geared to stimulate students to think and learn through the use of the target language. Such an approach lends itself quite naturally to the integrated teaching of the four traditional language skills. For example, it employs authentic reading materials which require students not only to understand information but to interpret and evaluate it as well. It provides a forum in which students can respond orally to reading and lecture materials. It recognizes that academic writing follows from listening, and reading, and thus requires students to synthesize facts and ideas from multiple sources as preparation for writing. In this approach, students are exposed to study skills and learn a variety of language skills which prepare them for the range of academic tasks they will encounter. (p. 2)

This quotation reflects a consistent set of descriptions by CBI practitioners who have come to appreciate the many ways that CBI offers ideal conditions for language learning when carried out appropriately, These practical considerations, along with the other support covered in this chapter, lead us to suggest seven strong rationales for CBI:

1. In content-based classrooms, students are exposed to a considerable amount of language while learning content. This incidental language should be comprehensible, linked to their immediate prior learning, and relevant to their needs-all important criteria for successful language learning. Such a setting for learning makes second language learning consistent with most other academic learning contexts as well; that is, most classrooms involve the teaching of some type of content information, and, in those classrooms, language learning also occurs-at least incidentally. In content-based classrooms, teachers and students explore interesting content while students are engaged in appropriate language-dependent activities, reflecting the learning that students carry out in other content-area classes. The resultant language learning activities, therefore, are not artificial or meaningless exercises.
2. CBI supports contextualized learning; students are taught useful language that is embedded within relevant discourse contexts rather than as isolated language fragments. In content-based classrooms, students have many opportunities to attend to language, to use language, and to negotiate content through language in natural discourse contexts. Thus, CBI allows for explicit language instruction, integrated with content instruction, in a relevant and purposeful context.
3. Students in CBI classes have increased opportunities to use the content knowledge and expertise that they bring to class. The use of coherently developed content resources allows students to call on their own prior knowledge to learn additional language and content material.
4. CBI itself promises to generate increased motivation among students; in content-based classrooms, students are exposed to complex information and are involved in demanding activities which can lead to intrinsic motivation. Motivation and interest arise partly from the recognition that learning is occurring and that it is worth the effort,

and partly from the appropriate matching of increasing student knowledge of a topic with increasing task (or learning) challenges.

5. CBI supports, in a natural way, such learning approaches as -cooperative learning, apprenticeship learning, experiential learning, and project-based learning. It also lends itself well to strategy instruction and practice, as theme units naturally require and recycle important strategies across varying content and learning tasks.

6. CBI allows greater flexibility and adaptability to be built into the curriculum and activity sequences. Because additional subtopics and issues can be incorporated into the course, teachers have many opportunities to adjust the class to complement the interests and needs of both teacher and student.

7. CBI lends itself to student-centered classroom activities; in content-based classrooms, students have opportunities to exercise choices and preferences in terms of specific content and learning activities. Because there are many avenues for exploring themes and topics in content-based classes, student involvement in topic and activity selection is increased.

These rationales, when combined with the empirical research findings and the documentation of program successes summarized in this chapter, provide persuasive arguments in favor of content-based instruction across a wide range of L2 instructional contexts. Yet we must acknowledge that -these rationales do not automatically operate in all programs which label themselves as content based. A simple label does not necessarily translate into the operationalization of these rationales, nor does it signify a program grounded in the careful structuring of content, language, and strategy instruction/learning. However, programs that do adopt these rationales, as programmatic foundations and in practice, can develop effective content-based curricula and powerful language and content learning classroom environments.