7   *Teaching content through a second language*

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The public media and educational literature have been replete recently with discussions of educational reforms, educational restructuring, and educational goals for the year 2000, goals that are the same for all our nation's schoolchildren. Yet for a substantial and growing segment of the school population, achieving the goals of schooling has an added challenge: How can they be attained when students have limited proficiency in English?

Many approaches to educating minority language students seem to be based on the assumption that proficiency in English is a prerequisite for academic learning, even though research seems to indicate that it may take as long as seven years for students to acquire a level of academic English proficiency comparable to native English-speaking peers (Collier, 1989; Cummins, 1981). Clearly, if minority language students are to achieve the goals of education, academic learning cannot be put on hold until students have acquired proficiency in English.

The results of foreign language immersion have shown that students can develop content knowledge at the same time as they develop language skills. In immersion, majority language students are educated in a new language. In total immersion programs, school activities—from mundane tasks such as collecting lunch money to cognitively demanding tasks such as learning how to read—are conducted in a foreign (second) language. Numerous studies of Canadian immersion programs have shown that English-speaking students schooled in French not only attain higher levels of proficiency in French than in any other school-based model of second language instruction but do so at no detriment to their native language, academic, or cognitive development (Genesee, 1987; Lambert and Tucker, 1972; Swain and Lapkin, 1985).

In the United States, schools are challenged to provide a quality education to students who are not yet proficient in English, and there are many teachers charged with developing these students' linguistic and academic proficiencies. Some teachers are English as a second language (ESL) teachers who see the children for part of the school day. Other teachers are grade-level teachers in whose rooms the students are "mainstreamed" for most of the day. And others are grade-level teachers whose students have been "exited" from ESL or bilingual programs but whose students continue to struggle with the linguistic demands of the academic curriculum. Yet other teachers of minority language students work in two-way immersion programs (also known as dual immersion, developmental bilingual, or two-way bilingual) or are bilingual education teachers whose students may have limited proficiency in English, and even perhaps their native

language. These students must be provided with content instruction. The students of these teachers simply cannot wait to develop high levels of academic language proficiency before tackling the demands of the curriculum. A basic premise of this chapter is that *all* teachers who work with second language students—second language teachers, grade-level teachers, bilingual education or two-way immersion teachers—must enable their students to make academic progress *while* they are learning English. It is clear from the results of foreign language immersion that achieving such a goal is possible.

Foreign language immersion teachers must also develop the linguistic and academic competence of majority language students who are learning through a new language. Recently, increased attention has been given to identifying what immersion teachers do (or should do) to facilitate the codevelopment of second language proficiency and academic content learning (Lorenz & Met, 1988; Mojhanovich & Fish, 1988; Snow, 1987). This chapter will draw upon the roles and tasks of immersion teachers and apply them to second language teachers. First, we will see how planning for instruction is affected by consideration of students' limited proficiency in the language of instruction. Then, we will explore how, as in foreign language immersion, teachers may adjust classroom activities and the delivery of instruction when the demands of the curriculum exceed the linguistic skills of students. Third, the chapter will focus on how assessment of student progress may be done when students are educated in a non-native language. Finally, we will discuss the implications of redefining the roles of teachers who work with second language students as teachers of *content* as well as of *language,* and the implications of these roles for teachers' relationships with one another.

Planning for instruction

All good teachers must be good planners. Costa and Garmston (1985) have suggested that good teaching rests on good planning. They indicate that the planning phase of the teaching process requires high levels of thought and may be the most important element in successful teaching. According to Costa and Garmston, good teachers see each lesson in terms of long-range and short-term instructional goals. They think about the lesson from the viewpoint of the learner and consider how individual learning styles, preferences, and abilities will interact with the lesson to be delivered. They envision the lesson as it will unfold (almost as though viewing a video in their head). Effective teachers plan with precision, identifying what they and their students will be doing in each part of the lesson, anticipating areas that may cause difficulty, and ensuring that time and materials needed for the lesson will be available.

Teachers who educate students in a non-native language need to do all of the above. But their unique charge requires that they perform additional planning tasks as well. These include sequencing objectives, planning for language growth, identifying instructional activities that make content accessible, selecting instructional materials appropriate to students' needs, and planning for assessment.

Sequencing content objectives

Teachers responsible for developing the content skills may find it helpful to adjust the sequence of content objectives, as do foreign language immersion teachers. Immersion teachers develop long-range plans by considering the language demands of the academic objectives. Where the structure of the academic objectives permits, teachers may find it helpful to reorder the sequence of content objectives so that those requiring the most language skills are postponed until students have had an opportunity to increase their language proficiency. Some objectives can be taught primarily through hands-on or visual experiences. Others may be more difficult to demonstrate in the classroom, be more abstract, or require that students have a greater repertoire of oral or writing skills. For example, in a primary grade science unit on "Living Things Grow and Change," firsthand experiences allow students to develop concepts about the growth of plants, concepts which can be developed during a four-week time frame. In contrast, learning about the growth of people requires pictures and more discussion since students cannot experience the concepts directly in class in a reasonable amount of time. Similarly, the effects of adequate and inadequate nutrition on plant growth can be shown, whereas the effects on human growth must be talked about. By dealing with plant growth first, second language teachers, like immersion teachers, can build the language skills necessary for students to address the objectives related to human growth.

Planning content lessons that contain language objectives

Teachers need to view every content lesson as a language lesson. It is especially important for teachers to see every language lesson as an opportunity to enhance students' concept attainment. Snow, Met, and Genesee (1989) have suggested a conceptual framework for identifying language objectives and have described how teachers in a variety of language teaching settings (ESL, bilingual, immersion, and FLES programs) fulfill their roles within this framework. The authors identify two kinds of language objectives: *content-obligatory* and *content-compatible* language objectives. Content-obligatory language is language so closely associated with specific content objectives that students cannot master the objectives without learning the language as well. For example, students cannot explain when to add and when to subtract without knowing the terms *add* and *subtract* and without some mechanism for expressing cause and effect relationships (e.g., "You add *because* . . " *"When you have* . . . you add."). In contrast, content-compatible language can be easily taught through a content lesson, but the material could be taught and learned without knowledge of this vocabulary, grammar, or language functions. For example, sixth-grade students discussing the relative merits of different forms of government can enrich the quality of their arguments if they have a wide range of vocabulary at their disposal (e.g., liberty, despotic, tyrannical) but could learn the concepts of democracy, autocracy, and so on with more limited linguistic resources (e.g., free, unfair, can't do what you want, etc.).

Content-based second language learning can play an important role in providing students with the language of academics needed for successful content mastery. Working collaboratively with

grade-level teachers, second language teachers can identify the content-obligatory language needed for subject matter mastery in the mainstream classroom. This language may then become the primary focus of second language lessons. Indeed, the teacher may teach the content lesson, incorporating the needed language skills and using activities that make the lesson and language comprehensible to students. Content-based classroom activities that use concrete experiences, manipulatives, and hands-on materials can facilitate the acquisition of content-obligatory language and may provide students with a valuable advance organizer for lessons on the same topic taught in the mainstream classroom. In bilingual or two-way immersion settings, teachers also need to identify content-obligatory language and plan conscientiously for the development of needed language skills in the course of content instruction.

Content-compatible language objectives are an important factor in students' continued language growth. They help teachers focus on how students' language skills can be stretched, refined, and expanded beyond their present level of attainment. Since students will always need to improve and refine their language skills (after all, even native speakers do), content-compatible language objectives are an important part of lesson planning. All teachers who teach students in a non-native language can find it helpful to build both content-obligatory and content-compatible language objectives into the planning of every content lesson.

   Content-compatible objectives are drawn from three sources: (1) a second language scope and sequence that describes how students are expected to grow and develop in their second language skills; (2) the teacher's observation of student language skills and his or her analysis of their classroom needs; and (3) the anticipated linguistic demands of the content curriculum to be taught in future lessons. Many U.S. school districts define ESL objectives in a curriculum scope and sequence for ESL instruction. Traditionally, these have been taught in isolation by ESL teachers. The teachers who may have seen their role as developing survival language skills or grammatical accuracy may find it more useful to see, themselves as teachers of language through content (i.e., content-based ESL) and to conscientiously plan for teaching the language of the curriculum. By selecting content from the school's curriculum that is compatible with ESL objectives, teachers can use this content as a communicative and cognitively engaging means of developing language and also help to promote their students' mastery of content material. For example, a content-based ESL teacher might reinforce the mathematics curriculum and simultaneously develop the ESL curriculum objectives related to describing daily activities and routines. The teacher might have students determine the amount of time they spend on these daily activities and routines, convert the information into percentages (out of twenty-four hours), and display those data in a pie graph.

   Another example of planning content-compatible language objectives derives from teacher observation of students' demonstrated language proficiency. The ESL, bilingual, or grade-level teacher may note that students consistently make errors of register when making requests of adults. The teacher notes that students frequently use commands ("Give me that!"), indirect declaratives ("I need that." "I want that."), or less polite forms of request ("Can I have that?"). Because the classroom provides few natural opportunities for students to develop skill in

adjusting their speech register to their audience, the teacher plans an assignment that addresses both the social studies objective in *Explorers of the New World,* for example, and the language needs of students—students could role-play Christopher Columbus soliciting the support of the Spanish monarchs in order to give students opportunities to use language for making requests.

The third source of content-compatible language objectives is the teacher's *long-range* plans for content objectives and the sequence in which content objectives will be taught. For example, a first-grade teacher (grade-level, bilingual, two-way, or foreign language immersion) plans a science unit for December to teach the concept that some objects float and some objects sink. In theory, the teacher can use any objects to demonstrate the concept—a bar of soap, an eraser, a brick. But the teacher also knows that in January students will begin a social studies/science unit on *Foods That Nourish the Body,* a unit for which the content-obligatory language will be vocabulary related to fruits and vegetables. Therefore, this teacher plans to use fruits and vegetables in December in the float/sink activities, making future content-obligatory language part of current content-compatible objectives. In a similar way, second language teachers can help to prepare their students for the language demands of content lessons to be taught in the mainstream classroom, by planning lessons that incorporate the anticipated language needs of the regular classroom.

Planning instructional activities

Once language and content objectives have been defined, teachers need to plan activities that are experiential, hands-on, cognitively engaging, and collaborative/cooperative. Planning for such activities is likely to be done by grade-level teachers (mainstream, bilingual, two-way, or foreign language immersion) and by content-based second language teachers.

Instructional activities and related materials must be both context-embedded and cognitively demanding. Cummins (1981) defines instructional tasks in terms of two intersecting continua. Context-reduced tasks are those that rely on few external supports for meaning (e.g., pictures, realia, manipulatives, or a meaningful context) (see also Chapter 1). In context-reduced tasks, meaning must be accessed primarily through language. At the other end of the continuum, context-embedded tasks use many supports for meaning to help make language, and thus the task, understandable. Listening to a lecture on an abstract topic is a context-reduced task; determining the weight of an object using a scale and metric weights is a context-embedded task.

Tasks may also be cognitively undemanding or demanding. Counting from one to one hundred is undemanding for most older children; finding the number that completes a pattern (e.g., 5, 9, 17, . . .?) is cognitively demanding. The challenge for teachers is to meet the cognitive demands of the curriculum by providing context-embedded instruction.

Students who are learning content in a new language have difficulty with cognitively demanding tasks in context-reduced situations. To allow students to acquire abstract concepts, teachers need

to design instructional approaches that make the abstract concrete. By enabling students to match what they hear with what they see and experience, teachers can ensure that students have access to meaning. Experiential, hands-on activities make input comprehensible. In fact, it is precisely this process of matching experience with language that allows students to learn language from content instruction. The use of concrete materials, hands-on activities, visuals, and realia provide multiple access and a variety of multisensory approaches to learning. In sum, these experiences can make the abstractions of content learning, in Cummins' terms, context-embedded.

   Cummins argues that the challenge of teaching students in a second language is to provide experiences that are both context-embedded *and* cognitively demanding. Too often, language instruction that is context-embedded is cognitively undemanding, simply a series of activities that are reduced, in the ultimate, to naming pictures. Content instruction by its very nature should be much more cognitively demanding. Teachers need to design activities that are accessible to students yet cognitively engaging. For example, rather than preteach vocabulary in isolation to describe what different objects are made of (wood, plastic, metal, etc.), one second-grade teacher used a lesson from a unit on *Conductors of Electricity* to demonstrate the meanings of these terms. As the teacher and students tested whether objects of wood, plastic, or metal in a battery's closed circuit would allow a bulb to light, students acquired both the language for describing matter and the concept that some materials do not conduct electricity.

   Lastly, teachers must plan instructional experiences that provide for student-to-student communication. Students need frequent and sustained opportunities to produce language, opportunities best provided through collaborative group learning activities (Long and Porter, 1985; Swain, 1985). Such collaborative activities provide for critically needed practice in verbalizing content knowledge. In addition, in mainstream and two-way immersion classrooms, heterogeneously structured pair and group activities also provide opportunities for students to use language for meaningful social interaction with peers.

Planning for instructional materials

One outgrowth of planning activities is the identification of materials needed for instruction. These will include manipulatives, visuals, and print and nonprint media. Although all teachers obviously have to think about the materials they will use during instruction, those who educate through a second language must add special criteria for selecting materials. Although there may be a large body of commercially produced materials available, these are rarely appropriate for students learning content in a language new to them. Most often, commercially available materials (developed for native speakers) demand a level of linguistic proficiency well beyond that of students, whereas materials that are at an appropriate linguistic level will often be inappropriate to students' cognitive maturity. Commercially produced materials targeted at native speakers are often culturally rich. This can be both an advantage and disadvantage. It is critically important for language learners to understand the culture of the language they are learning, but too often culturally rich materials provide an incomprehensible cultural context for learning (see also Chapter 2). For example, a mathematics word problem-based on a visit to the state fair may

confuse students who know the mathematical principles required for solving the problem but do not understand the setting, and thus the nature, of the problem.

Teachers must decide whether to adapt existing materials or develop their own. Some teachers are reluctant to develop their own materials, believing themselves less well-equipped to do so than professional authors and editors. While teacher-made materials have the distinct advantage of being designed to address the needs, abilities, and cultural background of students, they do require a considerable investment of teacher time and energy and often lack the color and artwork that is so appealing to younger learners. (A more detailed discussion of criteria for evaluating and selecting instructional materials may be found in Lorenz & Met, 1988.)

Integrating culture

Those who work with second language students just like immersion teachers) will want to plan for the integration of culture. This may mean teaching students about the culture of the speakers of the language they are learning as well as that of the students themselves. Where possible, culture should be infused into other areas of the curriculum. Teachers who integrate the teaching of culture with the objectives of the school curriculum can more easily "find time" for one more set of objectives and enrich instruction because students' learning is integrated rather than fragmented. A French immersion teacher working on a grade four social studies objective, *geographic features of our region,* used this opportunity to compare and contrast the topography of the local area with that of a selected region in France. Another immersion teacher used a fifthgrade science lesson on climate as a springboard for understanding the implications of geography on climate in contrasting Spanish-speaking cities such as San Juan, Mexico City, Lima, and Buenos Aires.

Similarly, those who work with learners of English can and should ensure that planning for instruction includes attention to the sociocultural needs of students, to cultural information and attitudes that will help students function in a new culture, and reinforce positive attitudes to students' home culture (see Chapter 12).

Planning for assessment

Instructional planning requires teachers to think about how language and content objectives will be assessed (see Chapter 9). Instruction and assessment go hand-in-hand, and planning for assessment and planning for teaching should be done at the same time. When planning for teaching and planning for assessment are done in a coordinated manner, teachers are able to ensure that their objectives, their teaching, and assessment all fit together. If teachers know what they want students to be able to do, and if they know how they are going to find out if students can do it, then planning how students will be prepared to perform (that is, what teaching activities they will use to enable students to learn) also becomes clear. Particularly when content is taught through a language in which students have limited proficiency, decisions need to be

made about how to assess content knowledge through language or independently of language. We will return to assessment later in this chapter.

In the classroom: teaching students in a second language

Enabling students to develop content knowledge and concepts when they are being educated in a language in which they have limited proficiency is not easy. Teachers must perform a variety of tasks and roles to ensure that students acquire the skills and knowledge in the school's curriculum at a level commensurate with those students who are learning it in their native language. To do this, teachers must be skilled in negotiating meaning; they must have well-developed skills in monitoring student performance; they must be expert in instructional decision making; they must serve as a role model for the use of language, cultural behaviors, and learning strategies; and they need to structure the environment to facilitate language learning. Each of these tasks is described in the following paragraphs.

Negotiation of meaning

Teachers who provide instruction in the student's second language must be continuously engaged in a negotiation of meaning process. In negotiating meaning, teachers and students endeavor to make themselves understood and to understand each other. It is a collaborative process of give and take in which each participant works to send and receive comprehensible messages (see, for example, Hawkins, 1988; Saville-Troike, 1987; Snow, 1989). Negotiation of meaning is critical in classrooms where students are learning content in a new language. If the meaning of what the teacher says is unclear, it will be difficult for students to acquire the skills and knowledge of the curriculum.

   Although there are many aspects to this process, and some of these aspects often occur simultaneously, for the purposes of discussion here the role of the teacher will be discussed from three perspectives: (1) making language understandable to students; (2) helping students make their messages understood; and (3) stretching, expanding, and refining students' language repertoire. These roles are discussed in greater detail below.

MAKING LANGUAGE AND CONTENT ACCESSIBLE

When students' language proficiency is very limited, the teacher plays a major role in the negotiation of meaning process by using context-embedded instructional tasks and by interpreting students' responses (or lack of them) as an indicator of the effectiveness of his or her communication. Because comprehension is essential to the learning of content, the teacher must ensure that his or her (i.e., the teacher's) messages are being understood. In delivering content lessons, teachers accompany talk with many contextual clues. Most characteristically, such

lessons rely heavily on concrete materials, hands-on experiences, manipulatives, and visuals. These help students match language with meaning.

Teachers of content (whether they be content-based second language teachers, mainstream teachers, or teachers in bilingual and two-way or foreign language immersion classrooms) can also help students with limited language proficiency acquire new concepts by linking new learning to background knowledge. For example, a social studies lesson on modes of transportation in the students' community can begin by having them classify miniature cars, trucks, planes, and so on according to whether they use them regularly, occasionally, or never; or students may classify these modes of transportation by the frequency with which they are used in their native country. A reading lesson on fables is easier for a fourth grader who is familiar with the structure of fables (e.g., a tale with a lesson at the end) than for one who is not.

Teachers also make language comprehensible by modifying their speech. They may speak more slowly, emphasizing key words or phrases. They may simplify their language, using more common vocabulary or simpler, high frequency grammatical structures. Redundancy provides additional supports for meaning. Teachers may restate, repeat, or paraphrase. Synonyms linking new vocabulary with known words facilitate both content and language learning, as does definition through exemplification. Similarly, antonyms provide counterexamples to meaning (e.g., "No, it's not cold; it's hot."). Body language, such as gestures and facial expressions, also help to link language to meaning.

HELPING STUDENTS COMMUNICATE

In the early stages of second language development, students have limited means of conveying their own messages in the new language. Teachers can play an important role in helping students get their meaning across, particularly in settings where students are taught by teachers who do not know the students' language. Just as teachers rely heavily on concrete materials, visuals, and body language, so too should students be encouraged to use these as enhancements for conveying meaning. Thus, students should have ready access within the classroom to visual and concrete materials. However, students should be encouraged to use *both* verbal and nonverbal means of communicating, or they may become overly reliant on nonverbal supports to their messages.

Teachers enable students to communicate verbally by making a "rich interpretation" of students' attempts to communicate (see, for example, Wells, 1986), and by maintaining open channels of communication. These are often accompanied by checks for understanding. When asked how Native Americans communicated across long distances, a fourth grader replied, "Smoke." The teacher interpreted his answer by responding, "Do you mean the Native Americans sent smoke signals to one another?" If there are students in the class with greater language proficiency, the teacher may ask them to expand on the first student's response ("Who can tell me more about what Juan has told us?") or ask a third student to paraphrase the response of the second ("Lupe, can you explain what Phan just said?"). These strategies encourage

continued communication between teacher and students, allow teachers to check their own comprehension of students' messages, and check students' comprehension of content.

   At this stage of linguistic development, when students are still quite limited in their abilities to understand and speak the new language, teachers may find it worthwhile to teach explicitly skills in conversational management. Students need to know how to say "I don't understand," or "Please repeat." Later, these skills can become more refined as students learn to rephrase these statements more politely ("Would you mind repeating that, please?").

EXPANDING AND REFINING STUDENTS' LANGUAGE

From the time students begin to produce language and as they continue to develop proficiency, teachers play an important third role. Gradually, as students become more skilled in their new language, teachers must help students expand their language skills and refine their existing ones. This is done both in the course of instruction, as teachers respond to students directly, or as they observe student-to-student communication. This, in turn, becomes observational data to be used in planning for students' language growth and in identifying content-compatible language objectives for future lessons.

   Because continued growth in language proficiency depends upon extended opportunities for linguistic interaction, teachers need to provide for frequent collaborative learning activities both in the second language classroom among learners of English and in classrooms where students can interact with native speakers. These activities increase the frequency of opportunities for students to hear language used for meaningful communication and to test out their own growing language repertoire. Continued, frequent, and sustained interactions provide for both input and output. In mainstream and two-way immersion classrooms, communication between native and non-native students allows learners of English to hear ever-increasing examples of the language and how it is used. As they listen to others, students also come to recognize "That's how you say that!" Each time these students speak, they are testing hypotheses they have formed about how the language works. The nature of the responses they receive from teachers or classmates helps them ascertain the validity of their hypotheses.

   While classmates thus provide an important vehicle for language practice, the teacher is equally important in refining student language. A sixth-grade student describing religious practices in Ancient Egypt indicated that the Egyptians would often "kill an animal for a god." The teacher replied, "Yes, it was a sacrifice." Teachers thus use content lessons as a means for stretching students' vocabulary, increasing their exposure to more sophisticated forms of academic discourse, and for explicitly developing language skills. These content lessons that embed language development were discussed earlier, in the section on planning when we examined the role of content-compatible language objectives.

The teacher as monitor

Teaching, it has been said, is like being inside a popcorn machine, with many things going on all at once. The teacher's task is to implement the lesson designed during the planning phase, yet monitor the lesson and students while teaching it. Monitoring is an integral part of the feedback cycle needed for effective formative evaluation. As teachers continuously monitor content mastery and language development, they observe and analyze students' verbal and nonverbal performance, checking for understanding of language and concepts. Often, it is difficult to ascertain whether students have difficulty with content because of their lack of language proficiency or despite it.

In a study of novice and veteran teachers, Berliner (cited in Brandt, 1986) found significant differences in their skills in monitoring multiple classroom events. When confronted with a bank of video monitors depicting several classroom settings and events, expert teachers were far more skilled in observing and reporting on their observations. Novice teachers, by contrast, were barely able to report accurately the events in one classroom. Teachers in mainstream, bilingual, or two-way immersion settings, in particular, need to be proficient in monitoring multiple classroom activities and events. These teachers have to contend with the range of ability levels characteristic of all classrooms and also with a significantly greater range of linguistic ability in the language of instruction. Because research supports the importance of providing students with extensive opportunities to use their growing language skills, second language teachers and other teachers who work with second language students need to provide for extensive pair and group work activities, and they, in turn, require greater monitoring skills on the part of the teacher (see Chapter 8). In addition, when learners of English are mainstreamed with native speakers of English, the teacher has more to monitor because of the distinct needs of ESL students in the class. Similarly, teachers in two-way programs face the greater challenges posed by the diversity of students' cognitive and linguistic proficiencies.

Skills in monitoring multiple classroom activities and events develop with time. A first and simple step in developing such skills is the awareness that such monitoring is not only desirable but an important element in managing learning in the classroom. A useful approach to monitoring student performance is to identify in advance indicators of on-task behavior, of successful content mastery, and of successful linguistic performance. Observations focused on such clearly identified indicators and use of record-keeping devices, such as checklists and anecdotal records, will promote effective monitoring of students and provide for sound instructional decision making (see Chapter 9).

Teachers' observations during the monitoring phase are a primary basis for instructional decisions. Teachers may use both informal and systematic observation of students. Students may be observed in cooperative groups or teacher-centered formats. Observations enable teachers to determine how well students are learning the curriculum objectives. A variety of information sources—anecdotal records, checklists, and data provided by student learning logs, for

example—may provide teachers with the information needed to monitor the effectiveness of their instruction and make appropriate instructional decisions.

Instructional decision making

Jackson (1968) has noted that teachers may make as many as 1,300 nontrivial instructional decisions each day. *Effective instructional decision making requires a repertoire of instructional options, and the knowledge base necessary for choosing wisely among the options.*

Providing instruction in a students' second language requires a greater repertoire than that of teachers in monolingual settings. Teachers who lack repertoire lack the flexibility to respond to learner's needs. Teachers who know only one way to teach a skill or concept have no fallback options if observations indicate that this one way is ineffective or inappropriate for a given individual or group of students. While all effective teachers need a repertoire of instructional approaches, teachers in second language settings need an expanded repertoire of strategies for making abstract skills and concepts concrete. That is, not only must the teacher have alternative approaches for teaching a given concept, the alternatives must also address the special linguistic and cultural needs of students. And the use of multiple approaches to making concepts understandable often means that a variety of learning preferences are addressed (i.e., the visual, the tactile, the kinesthetic, etc.).

Good decision making requires more than repertoire, more that is, than an awareness of the many options available. It also requires that teachers be able to select appropriately from this range of options. The ability to choose within one's repertoire depends on a sound understanding of how language and concepts are learned, and of how the characteristics of learners and instructional settings interact. Good decision making is informed decision making.

For teachers who teach content in a language new to students, informed decision making may depend upon an even deeper understanding of students and how they learn than it does in a monolingual setting. The teacher's knowledge of students' needs and abilities and of their linguistic and cultural characteristics will help to determine which of the available options is most appropriate at a given moment. For example, in a lesson on the natural habitats of frogs, a minority language student states that most frogs live in trees. The teacher's options include:

- accept the student's response without comment
- respond with positive reinforcement
- correct the student if the response is deemed incorrect
- probe to see if the student has misunderstood the lesson
- conclude that the student said *tree* because that is the only word for natural habitats the student knows, and therefore, the teacher decides to provide additional vocabulary options in her response

- conclude that the student has said tree because in Puerto Rico, where this student comes from, there is a common tree frog (*coqui*), and therefore, for this student, the answer is correct
- decide that further instruction using pictures and visual aids is needed to ensure that students are aware that frogs have several natural habitats and that students have the verbal skills to discuss them

While teachers in monolingual classrooms may face similar decisions, teachers who work with second language learners will need to have a broader understanding of students' background and a broader range of repertoire in order to make appropriate instructional decisions.

The teacher as model

For students who are being educated in a second language, teachers are models of linguistically and culturally appropriate behaviors. The teacher models both the academic and social language students will need. As we have seen earlier, content lessons serve as a vehicle for teachers to model the language of the academic curriculum. Through these lessons students acquire both new knowledge and the means to talk about them. In addition, teachers have opportunities throughout the day to model social language. They greet students, discuss students' activities outside the school setting, describe their own activities, and conduct administrative routines that provide many opportunities for non-instructional interaction. Culturally appropriate behaviors (both linguistic and nonlinguistic) are also modeled through instructional and non-instructional interactions. Students may observe differences between the way teachers speak to one another, the principal, parents, and other adults in the school and the ways in which they speak with children. Students may also observe nonlinguistic features such as proximity, gestures, and other body language appropriate to their new language. These learnings, in the long run, contribute to the growing effectiveness of students' communication.

Like teachers of native speakers, second language teachers can also model learning. Such techniques as reciprocal questioning and think aloud protocols (Bereiter & Bird, 1985) modeled by teachers (and later used by students) have a dual function when students are learning content through a new language. In the first language classroom, these techniques help students to acquire useful strategies to improve and monitor their own learning. Teachers who model these techniques to students who are learning content in a new language are additionally providing these students with the language they need in order to be clear in thinking and talking about their content learning. Further, such strategies promote higher order cognitive processes. This is particularly important in second language classrooms where too often instruction can easily slip into mere rote recitation of facts, labelling, or naming activities.

Whether a second language, grade-level, bilingual, two-way immersion, or foreign language immersion teacher, it is helpful for teachers to be aware of and exploit opportunities to serve as models of language, learning, and culture.

Structuring the environment

Grade-level teachers can help students acquire content in a language new to them through a carefully structured environment. A daily schedule that follows predictable patterns can facilitate language comprehension in the early stages of language development. Students can surmise that the teacher is directing them to prepare for lunch if lunch predictably follows the end of the mathematics lesson each day. Similarly, other classroom routines (attendance, collection of lunch money, distribution of materials) can help students match language to experience. Environmental print can help students begin to recognize the relationship between the oral classroom vocabulary they know and associated print labels. Bulletin boards filled with an abundance of visual materials can support content objectives; print labels and text accompanying the visuals can also provide for increased content and language learning. Most importantly, learning centers filled with hands-on experiences and listening tasks can contribute to content learning and language growth

A supportive, accepting learning environment benefits all students—regardless of their home language or culture. For students who may be anxious about trying to learn demanding content in a new language, a supportive environment is even more critical. Activities that are structured for success are likely to build the self-esteem needed for academic achievement. Frequent positive reinforcement helps uncertain learners know they are on the right track and encourage them to persevere. Wait time, which has been shown to increase the quality and quantity of student responses in native language classes (Rowe, 1978), is even more necessary in second language content classes. This is because limited-proficiency students must not only think about the right answer from the content perspective, but they also need time to formulate how they will communicate their response.

Assessing student progress

All teachers use assessment to measure how much students have learned; they use the results of assessment to evaluate the degree to which student learning meets their stated objective(s). When assessing students, teachers should be most concerned with finding out what students *have* learned, and they should allow students to *demonstrate* what they have learned. The emphasis should be on what students do *know and can do,* not on what they do not know and cannot do.

Assessment takes place both continuously and at the end of a unit of study. Teachers are continuously monitoring student performance informally during instruction. As was discussed earlier, such informal assessment provides important information for instructional decision-making, enabling teachers to informally monitor the effectiveness of instruction in addressing the learning needs of students (see Chapter 9). Information about student achievement collected in such an informal manner is based on students' verbal and nonverbal feedback during the course of lessons. This kind of assessment information is extremely useful for modifying ongoing instruction to ensure that what is taught and how it is taught is effective in helping students learn

concepts and language. More formal methods of assessment (such as tests) tell teachers how well individual students are progressing, whether they have attained unit objectives, and whether the teacher should advance to the next unit. Most commonly used forms of assessment are for these purposes.

Assessing concept mastery

Educating students in a second language presents unique problems in assessment. Teachers may have difficulty determining whether students fail to perform as expected because they have not mastered the concepts or because they simply lack the linguistic resources to demonstrate what they have learned. When students are extremely limited in their linguistic repertoire, it may be best to separate assessment of content mastery from language. What strategies can teachers of content use to ensure that students can demonstrate content mastery even when they are as yet unable to verbalize their knowledge and understanding?

Students may be asked to act out their knowledge. For example, students may take on the roles of the sun, moon, and earth and move in relation to one another to demonstrate their understanding of the concepts of revolution and rotation. Students may be given physical objects with which to demonstrate their understanding, as when students categorize plastic foods into the four basic food groups. Pictures can be part of paper/pencil tests, with students crossing out pictures that do not belong in a given group (e.g., Which of the following does not conduct electricity—a metal pin, a plastic ball, a piece of paper, or aluminum foil?). Or students may draw a picture to show what they know (e.g., foods the settlers of New England introduced to the Native Americans; foods the Native Americans introduced to the settlers).

Performance assessment is a way of measuring student achievement "by means of observation and professional judgment" (Stiggins, 1987, p. 33). It is "the process of gathering data by systematic observation for making decisions about an individual." (Berk, 1986, p. ix). Classroom-based performance assessment uses a variety of procedures and approaches for gathering information about student performance. Portfolios of student work (such as audiotapes and videotapes, writing samples, projects, posters, dioramas, and models), systematic observation of classroom performance, and conferences with individual students about their assignments and projects, are also effective ways to find out about student progress in relation to the objectives set for them. Because they are based on student performance, and not on some idealized, nonexistent average student or native speaker, they show what students actually *know and can do*. They can also be used to compare each student to his or her last performance and thereby give an indication of how individual students are progressing. Lastly, they are an appropriate way of ensuring that the delivery of content instruction is commensurate with the linguistic proficiency of the student at that point in time and in that content domain.

As students' language proficiency grows, and in particular their ability to read and write their new language, paper/pencil tests may be used for limited responses. For example, true/false

items, multiple choice tests, fill-in-the-blank items (particularly when a word bank is provided) can provide opportunities for students to demonstrate their learning despite their limited expressive capabilities. These tasks may lead the way to even more linguistically demanding assessment tasks such as rewriting false statements as true ones or responding with simple sentences and short paragraphs.

Although decisions about appropriate content instruction for students with limited language proficiency should not be based primarily on language-based assessments, it is important that students eventually be able to demonstrate their knowledge both verbally and nonverbally because "language proficiency is important to nearly everything that takes place in education" (Oller, 1991). The more effectively one can express one's thoughts through language, the more clear and precise thinking becomes. Research on the process of writing, for example, has shown that the processes required to produce a good piece of writing require and produce higher levels of cognition (Olson, 1985; Tierney, Soter, O'Flahavan, & McGinley, 1989). Therefore, as students become increasingly proficient at expressing themselves (whether orally or in writing), it becomes increasingly appropriate for teachers to encourage students to demonstrate content learning through oral and written communication.

Assessing language proficiency

Perhaps the most neglected aspect of assessment is classroom-based assessment of students' language skills. While many teachers conscientiously assess how much content students have learned, assessment of language frequently is done only through standardized tests of English language proficiency for determining eligibility for special services.

However, second language teachers, along with grade-level, bilingual, and two-way immersion teachers, are both content and language teachers. They need to plan as conscientiously for language growth as they do for content and vice versa. To assiduously plan for language growth, ongoing assessment of students' proficiency is a must. Planning for language growth means the teacher must be continuously assessing where students are in relation to where they ought to be and using assessment data to identify areas where further development of language growth is needed. These data are one of the bases for identifying content-compatible language objectives. Language assessments are based on the objectives determined in the planning phase of instruction. These objectives will most likely include both content-obligatory and content-compatible language objectives. The planning phase should also include indicators of how teachers will know that students have achieved these language objectives.

Because language objectives are most appropriate when tied to the linguistic demands of content objectives, assessment of language skills may be made during the course of content instruction. Checklists that specify language functions, grammar, and vocabulary needed for content knowledge can be used for assessment of students during routine classroom activities. As students demonstrate (or fail to demonstrate) their ability to use the requisite language skills,

teachers can keep records of students' language performance. Conferences with small groups of students or individual students that focus on content are also a good source of data on students' ability to understand and produce content-related language. Similarly, dialogue journals and learning logs provide teachers with information about students' ability to verbalize their content knowledge through print. It is extremely important that teachers have clearly defined objectives and criteria for students' linguistic performance in order for the data-gathering activities just described to be useful for assessing student progress and planning further instruction.

Classroom-based language assessments that are part of the instructional delivery system also help to identify content-obligatory language objectives for future lessons and units. Classroom-based language assessments help teachers know whether students have the language skills they will need for academic performance precisely because the assessment ties language to its purpose, which is content learning. Classroom-based language assessments are authentic in that they measure student proficiency in the real contexts in which language use occurs (learning of academic subject matter); they are integrative; and they assess the broad range of language skills needed in the classroom. Such assessment, in essence, has content validity.

From the day-to-day instructional perspective, the integration of language assessment with content assessment helps teachers—whether they are second language, grade-level, bilingual, two-way, or foreign language immersion teachers—engage in a constant formative/diagnostic feedback loop. Assessing students' background knowledge prior to introducing new concepts is important for all teachers. For those who teach content in a second language, assessing background knowledge also means knowing the range of the students' linguistic ability to handle the concepts. Teachers also need to know the language demands of their curriculum objectives, the extent to which students will be able to learn concepts and information from verbal input, and the extent to which special strategies, manipulatives, and concrete materials will be necessary for instructional delivery. Similarly, teachers need to know what supports must be provided to students for them to be able to demonstrate their knowledge and learning, especially when verbalization of what has been learned is not the best medium for getting and giving that information.

It is clear, then, that as instruction progresses, and as teachers observe the growth of students in the course of teaching and learning activities, a great deal of assessment data can be collected about the achievement of both content and language objectives. These data provide important information about individual students. In the aggregate, data from systematic observations, checklists, portfolios, and teacher-made tests provide information about the effectiveness of the instructional program.

Conclusion

Several implications emerge from the issues examined in this chapter. Perhaps the most salient is that it may be necessary for teachers who work with second language learners to redefine their

roles vis-à-vis their students and vis-à-vis one another. If the purpose of schooling is to educate students, then all teachers must contribute to students' achievement of curriculum objectives. Language cannot stand apart from content learning; rather, language should be acquired through content learning just as content may be learned through language. Teachers may no longer be able to afford the luxury of a language curriculum separate from the demands of the larger school curriculum. Instead, the language of content may be the most appropriate second language curriculum. Survival language and grammar are important parts of the curriculum, but perhaps it is equally, if not more, important that second language teachers be defined as teachers of academic language.

Grade-level teachers, such as mainstream, bilingual, and two-way immersion teachers, will need to have a clearer responsibility for the language development of their students. This means ensuring that plans for every content lesson include language objectives as well. While content objectives may drive decisions about instructional activities and materials, teachers will also need to consider the academic language needed for successful mastery of current subject matter instruction (content-obligatory language), the anticipated language needs of students in future content lessons, and the language demands beyond the classroom (content-compatible language).

If teachers redefine their instructional responsibilities, they may also redefine their relationships with one another. Clearly, in schools where second language teachers work side-by-side with mainstream, bilingual, or two-way immersion teachers, there needs to be a coordinated approach to meeting the needs of students. Collaborative planning among teachers can ensure that the linguistic demands of content learning are addressed both in the second language and the content classroom. Similarly, collaborative planning can enable teachers to provide content-based lessons that support, reinforce, and coordinate with content lessons provided by other teachers.

Teachers have a significant leadership role to play. They may need to take the initiative in collaborative planning activities, in identifying the academic language skills students will need for success in content learning, and in planning content-based lessons that support those in other classrooms. They may also need to assist mainstream teachers to understand how theories of second language acquisition can inform content lesson planning and to understand how content lessons may be made more comprehensible to second language learners. Lastly, it may be necessary to restructure how students are grouped for instruction in pullout programs (see Chapter 8). Rather than group students by language proficiency, it may be more useful to group them according to grade level (or rough approximations thereof). If second language teachers are to function as teachers of language through content and plan collaboratively with content teachers, then grade-appropriate content instruction will drive decisions about classroom activities. As such, it may be more feasible to group students with similar content (and language) needs than by overall language proficiency.

Second language teachers, bilingual teachers, grade-level teachers of minority language students, and foreign language immersion teachers all face the challenge of enabling students to learn content

in a language new to them. This chapter has attempted to describe how teachers can enhance their effectiveness as teachers of language through content and of content through language, through the effective planning, delivery, and assessment of instruction. Despite differences in their roles, these teachers share a common goal: to develop students who demonstrate content knowledge, skills, and concepts at or above grade level expectations; students who are proficient in at least one language in addition to that spoken at home; and students who can function effectively and comfortably in another culture.

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