

THEORETICAL BACKGROUND AND RESEARCH ON LEARNING STRATEGIES

We believe that theory is vital for teachers because it provides insight into why students respond to instruction in certain ways. While learning theory may not allow us to predict or explain all of the variations in learners, it can provide a framework for understanding commonalities among students and possible reasons for individual variations. Different instructional approaches are based on explicit or implicit beliefs about human learning. For example, cooperative learning is based on a belief in the social nature of learning. Many systems of classroom management are based on a behavioral theory that emphasizes the pairing of appropriate stimuli and rewards to desired responses. Approaches that call for higher-level thinking and student autonomy, such as the model outlined in this book, are based in large part on cognitive learning theory.

Instructional Objectives

This chapter will help you to:

- Identify contemporary learning theories that have the greatest explanatory power for the concept of a strategic learner.
- Analyze examples of strategies research in first language contexts that have applications to second language learning and teaching.
- Learn about major research studies on language learning strategies.
- Examine the relationship between motivation and learning strategies.

Learning Theories Supporting the Use and Development of Learning Strategies

Two major domains of current learning theory and research provide a rationale for learning strategies instruction. These are cognitive learning models, which focus on learners' mental processes, and social or social-cognitive models, which investigate the roles of interaction between individuals and group processes in learning.

Cognitive Models of Learning

Cognitive models view learning as an active, dynamic process in which learners select from incoming information, encode it into long-term memory, and retrieve it when needed. Cognitive theorists generally postulate two types of knowledge stores in long-term memory:

- 1 *Declarative knowledge*, which consists of information that we know about, such as facts, beliefs, and events; and
- 2 *Procedural knowledge*, which is knowledge of how to perform skills and processes, such as reading, writing, math computation, and conducting science experiments.

This distinction is important because declarative knowledge and procedural knowledge are learned differently and should therefore be taught in different ways.

Three cognitive learning models shed light on how learning strategies work: information processing, schema theory, and Constructivism. These models support both the importance of learning strategies and the goal of helping students become independent learners. O'Malley and Channot (1990) applied cognitive learning theory to second language acquisition as a theoretical foundation for understanding and applying language learning strategies.

Information Processing

Information processing theory examines the thinking processes associated with learning and remembering. These processes involve routing information from a person's immediate awareness into that person's long-term memory. The theory suggests that learning requires processing new information by organizing it, elaborating on it, and connecting it with existing knowledge. This is precisely the purpose of cognitive strategies such as *summarizing*, *inferencing*, and *predicting*. (For descriptions of the theoretical constructs and supporting research in information processing, see J. R. Anderson, 1983, 1990; and Schunk,

1996. For applications of information processing theory and research to learning in school, see Gagné, Yekovich, & Yekovich, 1993.)

Another critical component in information processing is metacognition, the "executive control" over thinking processes. The components of metacognition include both declarative knowledge about one's own thinking processes and learning strategies as well as procedural knowledge about how to monitor and direct learning and thinking. Explicit introduction to strategies, including when and why they are useful, helps support this metacognitive executive control.

In addition to the work of O'Malley and Chamot (1990) and O'Malley, Chamot, and Walker (1987), McLaughlin (1987) has applied information processing theory to second language learning. He describes a continuum from controlled processing, in which the learner must pay careful attention to linguistic features, to automatic processing, in which the learner, through practice, has built up the ability to process language with less conscious attention. The importance of metacognition in second language and foreign language learning has been further documented in the work of Wenden (1986, 1987a, 1991, 1998).

Schema Theory

Schema theory suggests that learning occurs as we try to organize and understand life experiences according to our pre-existing knowledge (Bartlett, 1932; R. C. Anderson, 1984). This pre-existing knowledge is stored in organized structures called schemata, which can be thought of as "concept maps" of a central concept and its associated ideas. Schemata can also be "scripts" for specific situations. For example, most of us have a schema for what will happen when we go to a fast-food restaurant. Having a schema, or relevant prior knowledge, allows us to *make predictions, visualize events, draw inferences, monitor comprehension, and create summaries*. Learning strategies such as these are critical to understanding new information in light of existing knowledge.

Schema theory has been applied to second language learning most extensively in the area of reading comprehension. In this area, the background knowledge (schemata) of a learner may differ conceptually and culturally from that of a native speaker of the language, thus introducing comprehension problems over and above any linguistic difficulties encountered (Carrell & Elsterhold, 1983).

The transferability of first language schemata to the second language has been identified as critical to successful school achievement for second language learners. Cummins (1996) has argued persuasively that

strategies for activating prior knowledge are of particular importance for second language learners. Not only does the use of students' prior knowledge assist in learning new information, but perhaps even more importantly, "teachers can validate culturally diverse students' background experiences and affirm their cultural knowledge." (Cummins, 1996, p. 78)

Constructivism

Constructivism goes a step beyond schema theory by suggesting a more interactive relationship between new information and existing knowledge. According to this theory, learners actively construct meaning as they encounter new information (Bransford, Barclay, & Franks, 1972; Spiro, 1980). Learners use their background knowledge of the world as an initial frame for relating to new information. They then use cognitive strategies as tools to help build meaning from the new information and from their background knowledge. The role of metacognitive strategies is also critical in helping the learner update interpretations as the information unfolds.

Social-Cognitive Models of Learning

Because learning does not take place in a vacuum, factors other than the learner's thoughts, or cognitions, can affect learning. Social-cognitive models focus not only on the individual learner, but also on the social nature of learning and other factors. Such models offer explanations not only for why strategies work, but also for how strategies can be taught.

Bandura's Social-Cognitive Theory

According to Bandura's (1986) social-cognitive theory, learning is based on complex, reciprocal interactions among behavior, environment, and on personal factors. Social-cognitive theory places special emphasis on the role of personal motivation—When a learner experiences success at a valued task, he or she develops a sense of self-efficacy—a belief that one has the capability to succeed at that kind of task. Self-efficacy can, in turn, affect whether the student is willing to try a task, as well as the student's persistence at the task, thoughts during the task, and eventual performance (Bandura, 1997). Using appropriate strategies can help build self-efficacy by creating success experiences and by giving students the tools for future successes. Social-affective strategies, such as *self-talk*, can also help students work through tasks by providing direct self-motivation. In our own research, we found that foreign language students with high self-efficacy also report using more learning strategies than do foreign language students with low self-efficacy (Chamot, Barnhardt, El-Dinary, Carbonaro, & Robbins, 1993). During

strategies instruction, it is critical that teachers ensure that students see how each strategy helps them experience success. This success will, in turn, develop their feelings of self-efficacy.

Self-Regulated Learning

Bandura's complex social-cognitive theory inspired others to build more comprehensive views of learning. In self-regulated learning theories, cognitive, metacognitive, and motivational strategies interact to create effective learning (Borkowski, Carr, Reilinger, & Pressley, 1990; Schunk & Zimmerman, 1994; Zimmerman, 1990; Zimmerman & Schunk, 1989). Self-regulated learners have coordinated the use of several cognitive strategies, such as *predicting*, *visualizing*, and *summarizing*. They also have metacognitive understanding of when and where to use their strategies, as well as how to adapt them to new situations. They use metacognitive strategies—such as *planning*, *monitoring*, and *evaluating*—to guide their learning. The role of metacognition in second language acquisition has been investigated most extensively by Wenden (1987a, 1991). She provides a theoretical examination based on research in first language contexts of how metacognition and self-regulation can function in second language learning (Wenden, 1998).

Finally, self-regulated learners are motivated, and a great source of their motivation is that they know that they can succeed when they use the other strategies they have learned. Affective strategies such as *self-talk* help support motivation because they serve as reminders to students that they can succeed.

Vygotsky's Social-Cognitive Theory

Vygotsky's (1962, 1978) social learning theory suggests that students develop mature thinking by observing how teachers and other experts approach learning tasks and by practicing expert processes with coaching from the teacher. (See supporting research by A. Collins, Brown, & Newman, 1989; Rogoff, 1990; Wood, Bruner, & Ross, 1976.) Learners can operate in their Zone of Proximal Development when teachers and others more proficient provide the support needed for completing the learning task. Eventually, teachers provide less support and students begin to internalize the kinds of thought processes (such as strategies) that they have observed and practiced. Vygotsky's theory supports the critical roles of modeling how to use strategies and of scaffolding guidance as students become more independent learners.

Thus several cognitive and social-cognitive models of learning support the need for learning strategies and provide insights into why strategies use is instrumental to learning. Furthermore, such learning theories pave

the way for learning strategies instruction, suggesting ways in which strategies might be taught. Specifically, these learning theories support explicit instruction that emphasizes metacognitive awareness of one's learning. They emphasize the importance of both connections to students' existing strategies and construction of individual understanding of strategies. They also highlight the critical role of modeling and practice, as well as the need for students to directly experience the benefits of strategies.

Insights from Learning Strategies Research

We turn now to research that has focused specifically on learning strategies. Our focus is on strategies instruction research, rather than the considerable body of research that describes only the strategies that students report using on different tasks. First, we discuss examples of research in first language contexts that appear to have applications to second language learning strategies instruction. Then, we provide an overview of some of the research, including our own, that has been conducted on language learning strategies instruction.

Research across Content Areas in Native English-Speaking Contexts

Cognitive and social-cognitive learning theories such as those described previously in this chapter inspired several instructional innovations that have had a significant impact on student achievement in mainstream education (see Pressley, El-Dinary, Caskins, Schuder, Bergman, Almasi, & Brown, 1992). Furthermore, a substantial body of research supports the explicit teaching of learning strategies for academic achievement in a variety of content areas (Pressley, Woloshyn, & Associates, 1995; Weinstein & Mayer, 1986).

For example, teaching students to use problem-solving strategies has had a positive effect on their mathematics achievement (Carpenter, Fennema, Peterson, Chiang, & Loef, 1989; Pressley, Woloshyn, & Associates, 1995; Silver & Marshall, 1990). Instruction in reading strategies has significantly improved students' comprehension, with striking results for poor readers (Brown, Pressley, Van Meter, & Schuder, 1996; Bereiter & Bird, 1985; C. Collins, 1991; Duffy, Roehrer, Sivan, Rackliffe, Book, Meloth, Verrus, Wesselman, Putnam, & Bassiri, 1987; Gagné, 1985; Gagné et al., 1993; Garner, 1987; Palincsar & Brown, 1986). Reading strategies that have been successful in these first language settings

include *activating background knowledge, predicting, inferring, visualizing, self-questioning, verifying one's understanding*, and *summarizing*. Similarly, improvements in writing performance have been reported in several studies in which learning-disabled students were explicitly taught strategies for planning, composing, and revising their writing (Englert, Raphael, Anderson, Anthony, & Stevens, 1991; Harris & Graham, 1992; Schumaker & Deshler, 1992). Across content areas, mnemonic strategies for improving memory have shown great success (see Willoughby & Wood, 1995, for a review). Successful memory strategies include:

- rhymes
- the keyword method (described in Chapter 2)
- first-letter mnemonics (such as "HOMES" for the names of the Great Lakes)
- loci (taking an imaginative tour of your house and in each room, picturing an item on your shopping list)
- the pegword method (remembering a list in sequence by imagining an interactive visual image that rhymes with each number; for example, "one" rhymes with "bun," so imagine the first person on your calling list sitting on a bun, and so on)

Early strategies instruction studies verified that under the right conditions, students could learn to use strategies and that the use of the instructed strategies resulted in more effective learning and school achievement. (See Pressley, Johnson, Symons, McGoldrick, & Kurita, 1989, for a review.) Such validations of learning strategies instruction inspired the development of instructional models that incorporate learning strategies for content instruction for native English-speaking students (Bergman, 1992; C. Collins, 1991; Duffy et al., 1987; Englert et al., 1991; Gaskins & Elliot, 1991; Harris & Graham, 1992; Jones & Idol, 1990; Jones, Palincsar, Ogle, & Carr, 1987; Palincsar & Brown, 1986; Schumaker & Deshler, 1992; Snyder & Pressley, 1990). Further research examined how these instructional models were implemented in the classroom. (See, for example, Derry, 1990; Dole, Duffy, Roehler, & Pearson, 1991; El-Dinary, 1993; El-Dinary, Brown, & Van Meter, 1995; Harris & Graham, 1992; Idol & Jones, 1991; Palincsar & Klenk, 1992; Pegow, 1992; Pressley et al., 1995; and Wood, Woloshyn, & Willoughby, 1995.) This body of literature both extended the scope of learning strategies instruction and revealed the seemingly infinite complexities involved in trying to understand how learners process information and skills.

Research on teaching learning strategies to students who were studying school subjects in their native language has made it possible to identify

effective approaches to strategies instruction. Pressley, Harris, and Marks (1992), for example, suggest guidelines for strategies instruction that include the following:

- Teaching only a few new strategies at a time
- Providing strategies practice with different types of tasks
- Teacher modeling of the strategies
- Telling students why strategies are important
- Identifying ways in which students can transfer strategies to new tasks
- Maintaining students' motivation to learn
- Encouraging students to reflect on their own learning

We have found that these suggestions are as important in the language classroom as in the content classroom. In Chapters 3 through 8, we incorporated these and other teaching suggestions based on empirical research into our instructional framework.

Research on Learning Strategies in Second Language Acquisition

Research on language learning strategies has focused mainly on descriptive studies that have identified characteristics of "the good language learner" and compared the strategies of more effective and less effective language learners. These studies have been critically important in laying the groundwork for understanding how language learners use learning strategies. They also have provided important information to guide experimental studies to identify the effects of learning strategies instruction on students.

Descriptive Studies of Language Learning Strategies

Descriptive studies of language learning strategies have taken several forms. This line of research began with studies of the characteristics of effective language learners. As the role of strategies became clear, researchers began developing instruments for measuring students' strategies use. Other studies have used individual, group, or think-aloud interviews to characterize how students apply strategies while working on language learning tasks. These descriptive studies include comparisons of learning strategies used by more and less effective language learners and, more recently, studies of how the use of strategies develops over time.

Studies of Characteristics of the Good Language Learner In 1975, Rubin suggested that a model of "the good language learner" could be identified by looking at the special strategies used by students who were

successful in their second language learning. Stern (1975) also identified a number of learner characteristics and strategic techniques associated with good language learners. Hosenfield (1976) fleshed out these characteristics, by using verbal reports, or think-aloud protocols, to investigate students' mental processes while they worked on language tasks. These studies were followed by the work of Naiman, Fröhlich, Stern, and Todesco (1978, 1996), which further pursued the notion that second language learning ability resides at least in part in the strategies one uses for learning. Taken together, these studies identified the good language learner as one who has the following characteristics:

- Is an active learner
- Monitors language production
- Practices communicating in the language
- Uses prior linguistic knowledge
- Uses various memorization techniques
- Asks questions for clarification

Development and Application of Measures of Strategies Use The cataloging of characteristics of the good language learner in the literature made it possible to create instruments for measuring strategies use. Oxford (1986) used more than 60 strategies identified from the literature on second language learning to develop the Strategy Inventory for Language Learning (SILL). The SILL is a 121-item Likert-type instrument that classifies strategies as cognitive, compensation, metacognitive, social, or affective. It has versions in a number of languages and has been administered to a large number of language learners both in the United States and internationally in mainly foreign language contexts (for example, French or Spanish in the United States and English in Japan).

The SILL studies have revealed correlations between learning strategies and other variables such as learning styles, gender, and culture (Bedell & Oxford, 1996; Green & Oxford, 1995; Oxford & Burry-Stock, 1995). In one such study, the SILL was administered to 1,200 university students who were studying various foreign languages (Nykas & Oxford, 1993). The analysis of responses revealed that language students might not use the strategies that research indicates would be most effective, such as strategies that promote self-regulated learning and those that provide meaningful practice in communication. This and other SILL studies have yielded important information about the reported language learning strategies use of a large number of language learners around the world. They also provide useful insights about learning strategies that might help students become better language learners.

Studies of Strategies Used During Language Tasks While

questionnaires such as the SILL are useful for gathering information from large numbers of subjects for quantitative comparisons, in-depth interview studies have elicited rich descriptions of students' use of learning strategies. For example, in a longitudinal EFL study, Robbins (1996a) investigated the learning strategies of Japanese college students as they developed their ability to carry on conversations in English. Paired with native speakers of English, the Japanese students were videotaped before and after an eight-month period of language exchange. The students watched videotapes of their conversations and provided verbal reports on their thoughts during them. Despite their reputation for reticence, the students reported their thought processes, and therefore their learning strategies, in great detail. It was found that fewer learning strategies were reported as the students progressed toward being more at ease with conversation in English, probably because of fewer challenges and pauses to recall the problem when reviewing the conversation. Some students mentioned that the experience of watching themselves converse on video made them more aware of what aspects of their speaking ability they needed to improve.

An early study of 70 high school ESL students identified the range and variety of learning strategies used for different tasks by successful students. The study revealed that these good students were active and strategic language learners who could focus on the requirements of a task, reflect on their own learning processes, and transfer previously learned concepts and learning strategies to the demands of the English as a second language (ESL) or general education content classroom (Chamot, 1987; O'Malley, Chamot, Stewer-Manzanares, Kipper, & Russo, 1985a).

Studies Comparing More Effective and Less Effective Learners A follow-up investigation to O'Malley, Chamot, et al. (1985a) compared the learning strategy profiles of more successful and less successful students in ESL classrooms and discovered significant differences in the listening approaches of the two groups (O'Malley, Chamot, & Kipper, 1989). The more effective students monitored their comprehension by asking themselves if what they were hearing made sense, they related new information to their own prior knowledge, and they made inferences about possible meanings when encountering unfamiliar words. In addition, the more successful students were able to transfer their prior academic knowledge in Spanish to the requirements of the English-language classroom. Thus these more effective ESL listeners were displaying a number of learning strategies that are typical of good readers in native English-speaking contexts (see Pressley, Woloshyn, & Associates, 1995).

The body of research on second language reading and writing processes also includes descriptions and comparisons of strategies use by more effective and less effective readers and writers (see, for example, Barnett, 1988; Carrell, 1989; Cohen & Cavalcanti, 1990; Devine, 1993; Krapels, 1990). This research indicates that good second language readers are able to monitor their comprehension and take action when comprehension falters and that composing strategies are more important than language proficiency in good second language writing (Devine, 1993; Krapels, 1990).

In our own research with high school foreign language students, we conducted individual, group, and think-aloud interviews in which students identified the learning strategies they used for a variety of language tasks, including listening, reading, grammar cloze, role playing, and writing (Chamot, Barnhardt, El-Dinary, Carbonaro, & Robbins, 1993; Chamot, Kupper, & Impink-Hernandez, 1988a). Differences between more effective and less effective learners were found in the number and range of strategies used, in how the strategies were applied to the task, and in whether they were appropriate for the task. In these studies, students' understanding of the task's requirements and whether they could match a strategy to meet those requirements seemed to be a major determinant of effective use of learning strategies.

Other studies comparing more effective and less effective language students have repeatedly revealed that less successful learners do use learning strategies, sometimes even as frequently as their more successful peers, but they use the strategies differently (Abraham & Vann, 1987; Chamot, Barnhardt, El-Dinary, & Robbins, 1993; Chamot & El-Dinary, 1998; Chamot, Kupper, & Impink-Hernandez, 1988a, 1998b; Kealey & Chamot, in preparation; Padron & Waxman, 1988; Vandergrift, 1997a, 1997b; Vann & Abraham, 1990). These studies confirmed that good language learners demonstrated adeptness at matching strategies to the task they were working on, while the less successful language learners seemed to lack the metacognitive knowledge about task requirements needed to select appropriate strategies. This trend was apparent with children in foreign language immersion classrooms, high school ESL and foreign language students, and adult language learners.

Longitudinal Studies of the Development of Strategies Use More recently, longitudinal think-aloud research has been used to understand the development of language learning strategies. An ongoing longitudinal study of elementary school language immersion students is documenting differences between more able and less able second language readers and writers at various ages (Chamot, forthcoming; Chamot, 1996; Chamot

& El-Dinary, 1996; Chamot & Kealey, in preparation; Chamot, Barnhardt, El-Dinary, Nagano, & Newman, 1996). This study has revealed a developmental sequence in the acquisition of learning strategies for reading and writing tasks, in that younger language learners resemble older, less effective learners.

In fact, these young readers and writers in immersion programs develop reading and writing abilities in much the same way that children do in nonimmersion native language programs. Many children (even some first graders) were able to describe their thinking processes, thereby demonstrating metacognitive awareness in their ability to describe their own thinking, usually in the second language. As further evidence of metacognition, students often had thoughtful responses about when and why they think in L2 or in L1.

In summary, the descriptive studies of language learning strategies (only a sampling of which we have presented here) have revealed suggestive differences between more successful and less successful learners. Can less successful students be taught to use the learning strategies that contribute to the achievements of more successful students? This is the basic question that guides intervention studies of language learning strategies.

Intervention Studies of Learning Strategies Instruction

While most learning strategies research conducted with language learners has been descriptive, a number of intervention studies have also been conducted. Intervention studies have sought to teach language learning strategies and to measure their effects on students. These experimental and quasi-experimental studies have taken place in classroom settings in which teachers and/or researchers have provided more or less direct strategies instruction to students to help them become better language learners. The effects investigated include performance on language tests, increase in reported use of learning strategies, attitudes, and self-efficacy.

A number of researchers have also suggested approaches and developed models for teaching language learning strategies and for helping teachers teach learning strategies. (See, for example, Brown, 1989; Chamot, Barnhardt, El-Dinary, & Robbins, 1996; Chamot & O'Malley, 1994; Ellis & Sinclair, 1989; Hosenfeld, Cavour, & Bonk, 1996; Kidd & Marquartson, 1996; Mendelsohn & Rubin, 1995; Nyikos, 1996; Oxford, 1990; Oxford, 1996; Oxford & Leaver, 1996; Rubin, 1996; Rubin & Thompson, 1994; Thompson & Rubin, 1998; Weaver & Cohen, 1997; Wenden, 1991; Wenden & Rubin, 1987; and Willing, 1985.) (For a review of the state of the art in teaching language learners how to learn,

see Wenden, 1998). In this section, we briefly review examples of intervention research in which students were taught to use learning strategies for various types of language learning tasks, including vocabulary learning, listening comprehension, reading comprehension, speaking, writing, and learning content subjects.

Vocabulary Strategies Instruction Studies Techniques abound for learning vocabulary, both in one's native language and in a second language. For instance, the effectiveness of the keyword method (see Chapter 2, p. 30), in which learners pair the word to be learned with a similar-sounding word in their native language and then link the two with a visual image, has been investigated in a series of nearly fifty experimental studies (reviewed by Pressley, Levin, & Delaney, 1982). This body of research has revealed that the keyword method is particularly effective for vocabulary recognition, especially of easily visualized words but it is less effective in helping students learn accurate pronunciation or spelling (Ellis & Beaton, 1993).

Other strategies, although less prolific than the keyword method, have also proven to be quite useful for vocabulary learning. Cohen and Aphkek (1981) taught students of Hebrew to remember vocabulary words by making paired mnemonic associations. They found that students who made associations remembered vocabulary words more effectively than those who did not make associations. In the first experimental study of language learning strategies instruction, O'Malley, Chamot, Slemmer-Manzanares, Russo, and Kuiper (1985b) taught high school ESL students how to apply learning strategies to three different types of tasks, and compared the students' performance to that of students in a nonstrategies control group. In the vocabulary task, students had to make their own groupings of words to be learned and then make a mental image of each group of related words. These strategies (*grouping/classification* and *imagery/visualization*) were effective for students who had not developed alternative strategies but were not for those who already used strong memorization strategies.

A similarly designed study was conducted with Arabic-speaking students at a university intensive-English program, in which students received different types of strategies instruction for vocabulary learning. On posttest, a significantly higher rate of recall was attained by the group that received a combination of strategies designed to provide depth of processing through visual, auditory, and semantic associations (Brown & Perry, 1991).

In his review of vocabulary intervention studies, Ellis (1994) concluded that the most effective strategies for vocabulary learning are "inferring

word meanings from context, semantic or imagery mediation between the FL word (or a keyword approximation) and the L1 translation, and deep processing for elaboration of the new word with existing knowledge" (p. 263).

Listening Strategies Instruction Studies Instruction in learning strategies for listening comprehension has been the focus of a number of language learning studies (for a review, see Chamot, 1995). In many of the studies on listening, the task was to listen to and view a video. In the O'Malley et al. (1985b) study described above, another of the three tasks was to listen to and view a video and then answer comprehension questions. Students in the intervention group were taught to use *selective attention*, *take notes*, and *cooperate* with a classmate to review their notes after listening. Results showed that the strategies were helpful for the videos that students found personally interesting but not for those that were less interesting or for which students lacked appropriate prior knowledge.

Additional studies have revealed other boundaries of strategies instruction, suggesting implications for teaching. Rubin and her colleagues (Rubin, Quinn, & Enos, 1988) taught high school students of Spanish to use learning strategies while listening to and viewing a video, and compared groups with three different types of strategies instruction to the control group, which had no strategies instruction. This study documented many of the problems associated with classroom-based experimental studies. For example, teachers often had difficulty implementing the learning strategies lessons, and students used the instructed strategies only when the video was challenging. For us, the implications of these problems are clear. That is, teachers need to design their own learning strategies lessons, and they need to teach students to use strategies for tasks that cannot be accomplished otherwise.

Ross and Rost (1991) used a ground-up approach to developing instruction in their listening comprehension study of communication strategies used by Japanese college students learning English. Researchers first identified differences in clarification strategies used by higher and lower proficiency-level students. Then students were randomly assigned for learning strategies training to one of three different videos and taught strategies previously identified for higher proficiency students. The results showed that less proficient students could successfully learn to use the same questioning strategies that were used by more proficient students to increase listening comprehension.

Another study of listening comprehension measured the transfer of the strategies taught (Thompson & Rubin, 1996). Third-year college

students of Russian viewed a variety of authentic Russian video clips over the course of an academic year. One class was taught metacognitive and cognitive strategies for improving comprehension of the video material, and the other class viewed the same videos but had no strategies instruction. Students receiving strategies instruction showed significant improvement on the video comprehension posttest compared to students in the control group. A standardized audio-only listening comprehension test was also administered to participating students. On this measure (which did not test what had been taught), the improvement of the experimental group approached, but did not reach, significance. In addition, students in the strategies group demonstrated metacognitive awareness through their ability to select and manage the strategies that would help them comprehend the videos.

Reading Strategies Instruction Studies Reading comprehension strategies have been the focus of several instructional studies in foreign language learning. In an early study, high school students of French were taught explicit reading strategies that improved their reading comprehension (Hosenfeld, Arnold, Kirchofer, Laciura, & Wilson, 1981). In an experimental study of metacognitive reading strategies instruction for college-level ESL students in two experimental groups were taught to use either semantic mapping or an explicit technique for relating prior knowledge to the text (Carrell, Pharis, & Liberto, 1989). Students in both experimental groups showed significant comprehension gains over the control group when answering open-ended questions. However, this gain did not apply to multiple-choice questions.

Another experimental study of metacognitive strategies instruction involved third-grade Spanish-speaking children who were taught reading strategies in Spanish. The children improved in reading performance on standardized tests in both Spanish and English. They also were able to transfer the instructed metacognitive strategies to their second language (Muñiz-Swicegood, 1994).

A recent study with seventh-grade native Spanish-speaking low-level readers involved a number of strategic interventions (Jiménez & Gómez, 1998). First, students' metacognitive awareness of their own thinking was developed by teaching them to think aloud in either Spanish or English or a mixture) about a Spanish text. Next, the researchers provided culturally relevant stories in English and taught students how to use strategies for unknown vocabulary, how to ask themselves questions about the text, and how to make inferences. Statements by students after the intervention indicated that they had more metacognitive understanding of their own reading processes and were aware of strategies they could use to assist comprehension.

Speaking and Writing Strategies Instruction Studies Learning strategies intervention studies for speaking and writing are few in number. This is because much of the research in these areas has been descriptive and has tended to focus on communication strategies or composing processes. (See, for example, Abraham & Vann, 1987; Chamot, 1987; Cohen, 1987; Cohen & Cavalcanti, 1990; Cohen & Olshtain, 1993; Faerch & Kasper, 1983; Leht, 1995; Raimes, 1985; Robbins, 1996a; Tarone, 1980, 1983; and Zamel, 1983.)

In the first experimental study, described earlier, on the effects of language learning strategies instruction on student achievement, the task on which strategies-trained students performed significantly better than students in the control group was a transactional speaking task (O'Malley, 1987; O'Malley & Chamot, 1990; O'Malley, Chamot, Stewner-Manzanarez, Russo, & Kipper, 1985b). This study was conducted with 75 high school ESL students who were randomly assigned to the experimental or control groups. For two weeks, the students in the experimental group were taught various strategies for academic tasks (vocabulary, listening, and speaking). For the transactional speaking task, in which students had to prepare a brief oral report on a topic of their choice and present it to a small group of classmates, significant differences in oral proficiency favored the strategies-trained groups. All practice sessions, as well as pretests and posttests, were tape-recorded and evaluated on pre-established criteria by outside judges. The experimental groups were taught *organizational planning* for their reports and techniques for *cooperating* with classmates to elicit feedback. The students in experimental groups were judged to be significantly more comprehensible and organized in their reports than the students in the control group. Almost all students wrote out their reports before presenting them orally, so it is likely that instruction in these same strategies would be equally helpful for written reports.

The effectiveness of learning strategies instruction for speaking was also investigated in EFL settings in Egypt and Japan (Dadour & Robbins, 1996). Learning strategies were explicitly taught to college-level EFL students in both countries. The study in Egypt was experimental, with students randomly assigned to intervention or control groups. The intervention groups participated in a special strategies instruction course. The results on the posttest showed that their speaking skills and use of the strategies were significantly superior to those of students in the control groups. The intervention study in Japan taught students a variety of strategies for speaking during three months and then assessed the value of the instruction through a student questionnaire. The results showed that most students understood the value of strategies instruction and wanted to learn more strategies for speaking.

Cohen and his associates (Cohen, Weaver, & Li, 1996; Cohen, 1998) investigated the impact of strategies-based instruction on college students of French and Norwegian during ten weeks of instruction. The intervention groups received instruction in learning strategies, while the comparison groups received language instruction only. Students were pretested and posttested on three different speaking tasks in the target language: a self-description, a retelling of a fairy tale they had read, and a description of a favorite city. After each task, students completed a checklist reporting the strategies they used. Students were also pretested and posttested with the Strategy Inventory for Language Learning (SILL). In addition, a sample of students at various proficiency levels were asked to complete learning strategies checklists explaining why they chose specific strategies, thus providing think-aloud data as they were completing the checklists.

The results indicated that integrating strategies instruction into the language course was beneficial to students, although the relationship of reported strategies use to performance was complex. For example, some students in the comparison group reported using strategies, even though they had not received strategies instruction, and in some instances, the increase in reported strategies use by comparison students seemed to be detrimental to their performance. Findings suggested that some students are able to acquire effective learning strategies without instruction while other students require systematic instruction and practice with learning strategies in order to learn to use them effectively.

An experimental study involving writing in conjunction with reading comprehension investigated the effects of learning strategies instruction on third- and fourth-grade limited English proficient children (Bernandez & Prater, 1990). Strategies taught to the experimental group were *brainstorming* and *clustering*. Before children read an expository text, such as a story, they used the title and illustrations to brainstorm what it might be about (in Chapter 2, this strategy is identified as *predicting*), and the teacher recorded the results on a graphic organizer. After reading, children in the experimental group were taught to cluster connected ideas in the text by color-coding similar ideas (we identify this type of strategy as *selective attention*). Finally, all students wrote a paragraph about the text. The results showed that the strategies group produced significantly more elaborations in their essays and that their paragraphs tended to be better organized than those of the control group.

Content-Based Strategies Instruction Studies Learning strategies instruction in content-based ESL has been investigated in a number of studies on the Cognitive Academic Language Learning Approach (CALLA), described in Chapter 1. Evaluations of the CALLA model

were conducted for five different CALLA programs. Although all reported successful use of learning strategies by students, reliable assessment of the effect of learning strategies instruction was provided in only two of the programs (O'Malley & Chamot, 1998). In the first of these, teachers in ESL-mathematics classrooms implemented learning strategies instruction to assist students in solving word problems (Chamot, Dale, O'Malley, & Spanos, 1993). Students were taught to use *planning*, *monitoring*, *problem-solving*, and *evaluating* strategies in a sequential order for solving word problems. Students in high-implementation classrooms (in which teachers had provided explicit and frequent strategies instruction) performed significantly better on a word problem think-aloud interview than students in low-implementation classrooms (in which the instruction was mainly implicit and infrequent).

In the second study, Varela (1997) investigated the effects of CALLA learning strategies instruction in a middle school ESL-science classroom compared with a similar classroom that received equivalent instruction without the learning strategies component. This study was based on the transactional speaking component of O'Malley et al. (1985b; see also O'Malley & Chamot, 1990). In the Varela (1997) study, students in the intervention classroom were taught strategies to assist them in presenting an oral report on their science fair projects. The strategies included using *graphic organizers*, *selective attention*, *self-assessment*, and *self-talk*. After two weeks of instruction, students in the strategies group reported using significantly more strategies than control group students did. Also, their videotaped performances of their science fair reports showed significant improvement over their performances prior to the strategies instruction.

To conclude our summary of research on language learning strategies, we describe our studies of classroom-based learning strategies instruction. These studies reflected a long-standing interest in helping teachers incorporate learning strategies instruction into their language classrooms.

A course development study was designed to involve teachers in selecting and integrating strategies instruction into their high school/university Russian or Spanish classrooms (Chamot & Kupper, 1989, 1990; Chamot, Kupper, & Impink-Hernandez, 1988a, 1988b; Chamot, Kupper, & Barrueta, 1990; Chamot, Kupper, Thompson, & Barnhardt, 1990; Chamot, Kupper, & Toth, 1990; O'Malley & Chamot, 1990). Researchers and teachers participated in developing instructional modules for teaching learning strategies for listening, reading, speaking, and writing. The modules were field-tested by participating teachers and then revised according to the teachers'

suggestions. In a follow-up study, the modules were implemented by different teachers and for different languages. For example, the listening strategies module in Spanish was adapted for French, the reading strategies module for Russian was also adapted for French, and the writing strategies module for French was adapted for Spanish (Chamot & Kupper, 1990). Findings from these two studies indicated that learning strategies instruction calls for a special type of teaching and that teachers may need support in its implementation (which is the major purpose of this book). In addition, students' responses to the instruction indicated that they enjoyed learning strategies activities and had individual preferences for different strategies. Those responses also showed that the students were confused when too many strategies were introduced at once. These insights into some of the practical realities of learning strategies instruction have guided our recent research.

Thirteen high school teachers and four college teachers participated in two parallel studies that investigated the implementation of learning strategies instruction in Japanese, Russian, and Spanish foreign classrooms (Chamot, 1993, 1994; Chamot, Barnhardt, El-Dinawy, & Robbins, 1996; Chamot, Barnhardt, El-Dinawy, Carbonaro, & Robbins, 1993; Chamot & O'Malley, 1994b). Researchers developed resource guides for teaching learning strategies (the prototypes for this book) and provided ongoing professional development workshops and conferences to help teachers implement the instruction. Over the three years of the two studies, 722 high school students of Japanese, Russian, and Spanish and 50 college students of Japanese received instruction in language learning strategies from their teachers. Important outcomes of these studies were the development of the Metacognitive Model of Strategic Learning (see Chapter 2) and the Framework for Learning Strategies Instruction (see Chapter 3). The strategies instruction was evaluated through interviews and questionnaires with teachers and students. We discovered that once we provided scaffolding and sample lesson plans, teachers could go on to develop creative and effective learning strategies lessons that were seamlessly integrated into their course structure. Most students reported that the strategies instruction had a positive effect on their language learning, and some (but not all) students indicated that they also used the strategies outside of class. Students' metacognitive awareness of their own approaches to learning was reflected in their comments on the strategies they used or did not use and their reasons for using or not using them.

We continued this research direction in an instructional study of learning strategies conducted from 1993 to 1996 (Chamot, Barnhardt, & El-Dinawy, 1996). The objective of this study was to investigate how to best support foreign language instructors of Chinese, French, German, Japanese, Russian, and Spanish so they could effectively teach language

learning strategies in classes of different levels ranging from elementary immersion through higher education. Researchers worked with participant teachers for three years (1993-96), providing many types of professional support for teaching learning strategies. The methods of evaluation used were classroom observations, student group interviews, and teacher interviews and questionnaires. We learned that while workshops motivated teachers to try strategies instruction, follow-up support such as model lessons, one-to-one coaching, and peer discussions were invaluable to their integrating learning strategies into language instruction. One of the greatest challenges for teachers was shifting from implicitly applying strategies for themselves to explicitly teaching students to apply strategies for themselves. Another critical shift was from teaching strategies as a separate entity to integrating strategies into the language curriculum. Teachers also struggled with determining an appropriate scope and sequence of strategies to teach at various levels, and they wanted guidance in how to scaffold strategies effectively at upper levels and for high achievers. Overall, however, teachers, when given coaching, were able to adapt instruction to their own languages and levels. This reinforced our long-held view that the Metacognitive Model of Strategic Learning (Chapter 2) and the Instructional Framework (Chapter 3) are applicable across languages and levels. Teachers in this study cited a variety of positive impacts that strategies instruction was having on their students, including:

- Improving students' understanding of the target language
- Helping students become more responsible and active learners
- Improving students' motivation for language learning
- Building students' independent use of strategies

Several teachers also said that strategies instruction had improved their teaching in general.

This handbook was developed, in part, in reaction to teachers' overwhelming positive response to the written materials provided in our workshops. We have also included a variety of sample lesson plans (Chapter 10) because feedback from teachers we have worked with indicates that teaching from such lessons provides both an opportunity to get accustomed to strategies teaching and a model for developing lessons independently. Through teacher tips, we also have attempted to integrate the kinds of suggestions we have found useful in individual coaching settings.

In summary, the effectiveness of learning strategies instruction has been well established in first language contexts. Research in those contexts has moved from validating instruction in individual strategies to

identifying elements of effective strategies instruction integrated into a curriculum. Many of the same learning strategies used in first language contexts have also proven useful in second language learning. Studies in second language learning began by focusing on the strategies that distinguish effective language learners. Research is now moving toward an understanding of strategies development, validations of language learning strategies instruction in the classroom, and an understanding of the professional support that teachers need in order to develop effective strategies instruction.

Motivation and Learning Strategies

Learner motivation, though complex and multifaceted, is critical for all types of learning, including language learning. Motivation affects how hard students are willing to work on a task, how much they will persevere when they are challenged, and how much satisfaction they feel when they accomplish a learning task. When teachers teach learning strategies, it is critical that they develop students' motivation to use the strategies. In return, the use of learning strategies can increase student motivation for language learning tasks.

Several critical components play a role in student motivation, including how much students value the task (value), how much they expect to succeed in the domain (expectancy), how much they believe that they possess what it takes to succeed at the task (self-efficacy), and what factors they believe are responsible for success or failure at the task (attributions). Each of these components has implications for language learning strategies instruction.

Value

Students are more motivated on tasks that they value. Students may value a task because they find it intrinsically interesting, because they find it applicable to their lives, or both. Teachers try many ways to gain students' intrinsic interest in academic tasks, including using authentic literature, choosing activities that might be fun for students, and focusing on content that has cultural relevance. Learning materials are authentic when they contain content that applies to students' lives, when they connect with students' previous experiences, when they can be immediately applied to new experiences, and when they relate to other information students are learning (Chamot & O'Malley, 1994).

Expectancy

Over years of exposure to learning experiences, students develop overall expectations for success or failure in school. Thus students often have an

overall feeling of being a "good student" or "bad student." As they grow older and have experiences in several content areas, they begin to differentiate their expectations for success. For example, a student may say he has "an ear for languages" or she "can't do math." Most high school students can identify areas that they think they are "good at" and "bad at." Each day in a classroom can reinforce a student's expectations of success or failure in that field. In turn, these deep-rooted expectations influence each future encounter in that field. Thus it is critical to ensure that students experience successes in the classroom. It is important to have tasks that are appropriately challenging—not so difficult that students cannot experience success and yet not so easy that success is not valued. Having access to appropriate strategies can help students experience success on challenging and meaningful tasks and can eventually lead to higher expectations of learning success.

Self-Efficacy

Self-efficacy is the specific confidence that one is capable of successfully completing a particular task. It is knowing that you have what it takes to do the task right (Zimmerman & Pons, 1986). Self-efficacy is at the core of motivation, self-esteem, and self-regulation (Bandura, 1993). The development of self-efficacy is tied closely with effective use of learning strategies (Zimmerman, 1990). Students with high self-efficacy have confidence that they can solve a problem because they have developed strategies for the task that have worked for them in the past. They believe that the more they learn and practice, the more their capabilities will improve, and they understand that mistakes are just a part of learning. In contrast, students with low self-efficacy think that they have inherent low ability. They believe that effort will reveal their own inability, and they choose easy tasks to try to avoid making mistakes (Bandura, 1993). Building students' strategic awareness can help them see that they are capable of solving problems when they use the correct tools. In second language learning research, correlations have been found between students' reported learning strategies use and their self-efficacy, in particular their beliefs about their own effectiveness as language learners (see Chamot et al., 1993; Chamot & O'Malley, 1993, 1994b; Robbins, 1993).

Attributions

Students' approach to school tasks can depend on the factors to which they attribute their success or failure. Learners often attribute performance to natural ability, luck, and outside influences such as a good or poor teacher. These are factors that are largely perceived as out of the learner's control. Less often, students may attribute school success to effort or, even more appropriately, to effective strategies. As with other

motivational beliefs, students' attributions for success or failure evolve over a long time and are difficult to change. Strategies instruction helps to alter students' attributions by showing them that they can succeed if they use appropriate strategies and, conversely, that their failures can be attributed to the lack of effective strategies use rather than the lack of ability.

In sum, one goal of strategies instruction is to build student motivation, both for language learning and for strategies learning, by showing students their own success with strategies. Effective strategies use can help build students' self-efficacy for language tasks and their expectations for success in language learning. As students learn to attribute their success to effective strategies use, they will come to value and rely on strategies even more. On the road to these goals, teachers must ensure that students experience meaningful successes with strategies by providing authentic, appropriately challenging tasks and by teaching strategies explicitly so that students know how to apply them.

Conclusion

A variety of cognitive and social-cognitive theories inspired the development of learning strategies in native English-speaking contexts. Instructional models have shed light on how strategies instruction can be successfully integrated into content instruction to support learning in many domains. Research in ESL, foreign language, and bilingual education has verified that strategies can have a powerful impact on language learning.

Theories of learning continue to shed light on the importance of learning strategies instruction and to guide its implementation. For example, student motivation is an important consideration when presenting learning strategies instruction, and, in turn, strategies instruction can be quite powerful in building student motivation for language learning.

As teachers apply learning strategies instruction, their own classroom research also can inform their strategies instruction. Teachers can identify the strategies that best meet their students' immediate needs, they can explore students' reactions to their instructional approaches, and they can use classroom research as a tool for showing students that strategies really work.

Chapter 10

LANGUAGE LEARNING STRATEGIES LESSONS

This chapter presents sample lessons that demonstrate how learning strategies can be integrated with a variety of language and content topics and tasks. Our experience has shown that many language teachers hesitate to add learning strategies instruction to their teaching because of an already crowded curriculum. We have heard many teachers say, "It sounds wonderful, but I don't have time to teach anything extra!" We wanted to show how strategies can be woven into the language curriculum as an integral part rather than as an add-on component that takes time away from language activities. So we invited a number of ESL, EFL, and foreign language teachers to contribute learning strategies lessons that they had taught successfully. We selected lessons to cover a range of learning strategies, different languages, and various proficiency and grade levels. We also selected lessons that could be adapted to languages and levels other than the ones for which they were originally designed. Instead of a series of learning strategies activities, these are language lessons to which learning strategies instruction has been added. These authentic lessons have actually been used in real language classrooms, and we hope that they will provide useful examples of how learning strategies can be taught in the second or foreign language classroom.