1

Working with Students to Promote Independent Learning

Studying is deliberate and purposeful learning that is pursued autonomously.

OVERVIEW

Each component in the definition above is extremely important. Studying is deliberate, not incidental, learning; it is purposeful, not random, learning; and it is autonomous and independent, rather than controlled by an adult. While some students seem to know instinctively how to learn independently, most need to be taught both strategies and methods to implement these strategies.

> **Ruth** has attention-deficit disorder (ADD/ADHD) and a mild learning disability in written language. Throughout her elementary and high school years, she struggled with academics and often felt inferior to her high-achieving friends. She was placed on a Section 504 plan in high school and received some assignment modifications, but the primary interventions were direct instruction in study strategies. Ruth's earlier struggles eventually paid off: The study strategies she learned as an adolescent have enabled her to self-regulate her learning at college, unlike her friends who had "never had to learn how to study." As a college student, Ruth breaks large assignments down into components, begins working on assignments early, and disciplines herself to study and complete assignments before other activities. She uses computer spell and grammar checkers, and also has a friend double-check her papers before submission. She reads assignments before class, takes notes from the readings, and then combines them with her lecture notes to facilitate reviewing for exams, because she knows she can only remember material when it is presented in context. Recently she was so inspired by reading *Emma* for her literature course that she began writing a novel in her free time. Her parents cannot believe that the fourth grader who was frustrated to tears with homework and called herself "stupid" is now a self-motivated, enthusiastic scholar.

How did Ruth learn to become a self-motivated and enthusiastic scholar? How did she learn to self-regulate her motivation, emotions, and behaviors? How did she learn to manage her time and organization? How did she learn which study strategies helped her read, write, and learn well enough that she could generalize them to the self-chosen and highly demanding task of writing a

novel? How can adults empower other students to acquire similar skills? This chapter provides an overview of general student considerations relevant to the acquisition of study skills. It focuses on the relevance of self-regulation to factors that must be addressed to help students learn deliberately, purposefully, and autonomously. Concepts contained in this chapter are summarized in Worksheet 1.1, Checklist of Strategies to Promote Independent Learning.

RESEARCH FOUNDATIONS

The topic of "studying" was specifically addressed by neither educators nor research psychologists for many years, because it was presumed that students developed and generalized these skills independently (Rohwer, 1984). Unfortunately, the reality is that unless students are taught specific study strategies, they rarely develop the necessary self-monitoring skills for optimal academic performance (Harvey, 2002). In recent years considerable research has been devoted to examining skills relevant to studying. As a result, shifting from simply teaching specific study strategies to teaching students self-regulation is now recommended (Zimmerman & Martinez Pons, 1986; Zimmerman, 1998b). As indicated by Puustinen and Pulkkinen (2001), a major educational goal should be the "development of self-regulatory skills and the creation of opportunities for life-long learning. Self-regulated learners actively and autonomously guide their own learning and update their knowledge whenever necessary" (p. 283).

The Importance of Self-Regulation

When athletes use "mental training" to improve performance, they set realistic short- and long-term goals, cultivate awareness, harness motivation, deliberately relax the body and mind, experience yet manage negative emotions such as anxiety, improve attention and concentration, and visualize success (Murphy, 2005). Similar methods are used in other disciplines such as music and professional writing, both when skills are initially being developed and when they are being maintained at a professional level. Guided instruction in, and the adoption of, self-regulatory strategies when individuals are learning chess, computer programming, athletics, music, typing, and writing have been found to be more important than innate talent. By the time musicians are top-level performers, they have practiced 10,000 hours—3 hours per day, 6 days per week, for 10 years—a level of sustained practice requiring motivational, behavioral, and emotional self-management (Ericsson & Charness, 1994; Zimmerman, Bonner, & Kovach, 1996; Zimmerman, 1998a).

Similar strategies are employed when successful students learn academics independently: They self-regulate motivation, emotions, behavior, time management, cognition, and context to optimize their learning. They apply specific strategies as they learn, think about how well these strategies are working, and then modify their strategies according to their success (Peklaj, 2002; Schunk & Ertmner, 2000; Zeidner, Boekaerts, & Pintrich, 2000; Zimmerman, 2000b).

Factors and Microprocesses in Self-Regulation

Each factor involved in learning is a component of a dynamic system that continually and mutually influences other factors in the system (Bronfenbrenner, 1979; Shapiro & Schwartz, 2000), as depicted in Figure 1.1. Within each factor, many microprocesses are involved. These include holding positive beliefs about one's capabilities; experiencing and fostering positive emotions about learning; managing goal orientations; setting goals for learning; strategic planning; attending to and concentrating on instruction; using effective cognitive strategies to organize, code, and rehearse information to be remembered; employing metacognitive strategies to assess learning and the efficacy of learning strategies; monitoring performance; managing time effectively; estab-

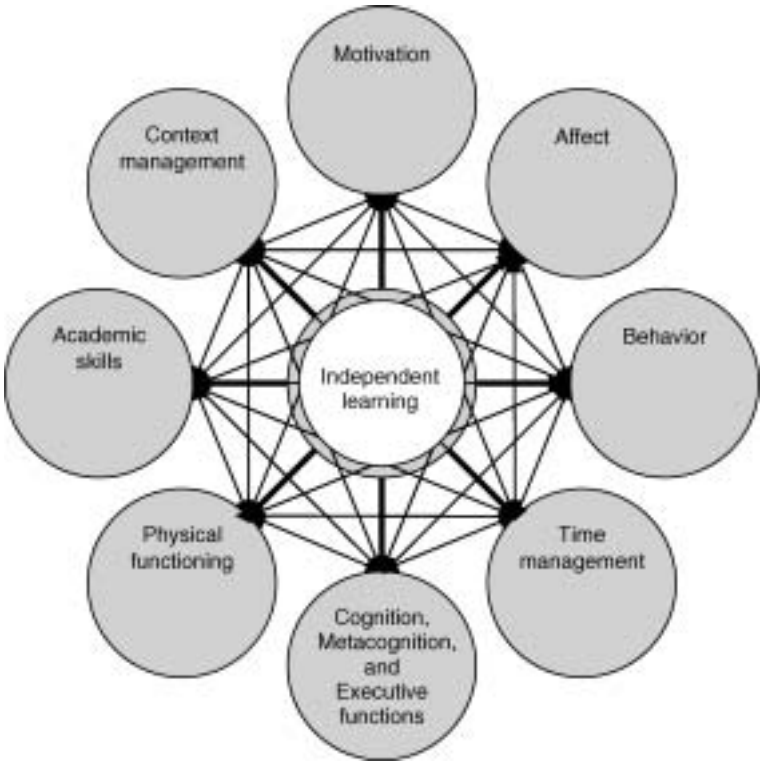

FIGURE 1.1. Student factors involved in independent learning.

lishing a congenial and productive work environment; using resources effectively; and seeking assistance when needed (Schunk & Ertmer, 2000; Zeidner et al., 2000).

While it can be daunting to realize that so many elements are involved and can potentially contribute to difficulty with independent learning, it is also encouraging, because so many elements can be addressed to improve functioning. Just as in family therapy, every component can be seen as part of the problem or, alternatively, as part of the solution (Minuchin, 1974). The use of self-regulatory strategies, particularly organization, record keeping and monitoring, record review, and environment control, predicts academic achievement level 96% of the time (Zhou, Zhang, & Fu, 2001).

Furthermore, instructional, familial, and social factors interact with student factors to form a larger dynamic system (Bronfenbrenner, 1979; Shapiro & Schwartz, 2000). This dynamic is depicted in Figure 1.2. As the figure suggests, the manner in which a student is treated influences his or her performance, and in turn a student's performance influences the manner in which he or she is treated. Highly motivated students have teachers, parents, and friends who respond to them quite differently than do disruptive students who are not highly academically motivated. Likewise, highly motivated students treat parents and teachers differently than poorly motivated students.

The Cycle of Self-Regulation

Models of self-regulation vary somewhat according to an author's theoretical orientation but all agree that self-regulation involves at least three phases (Pintrich, 2000b). Throughout this book we have chosen to refer to these phases as: (1) *preparation* (forethought, task definition, planning, goal setting, task analysis, strategy selection, selection of beliefs such as self-efficacy, outcome

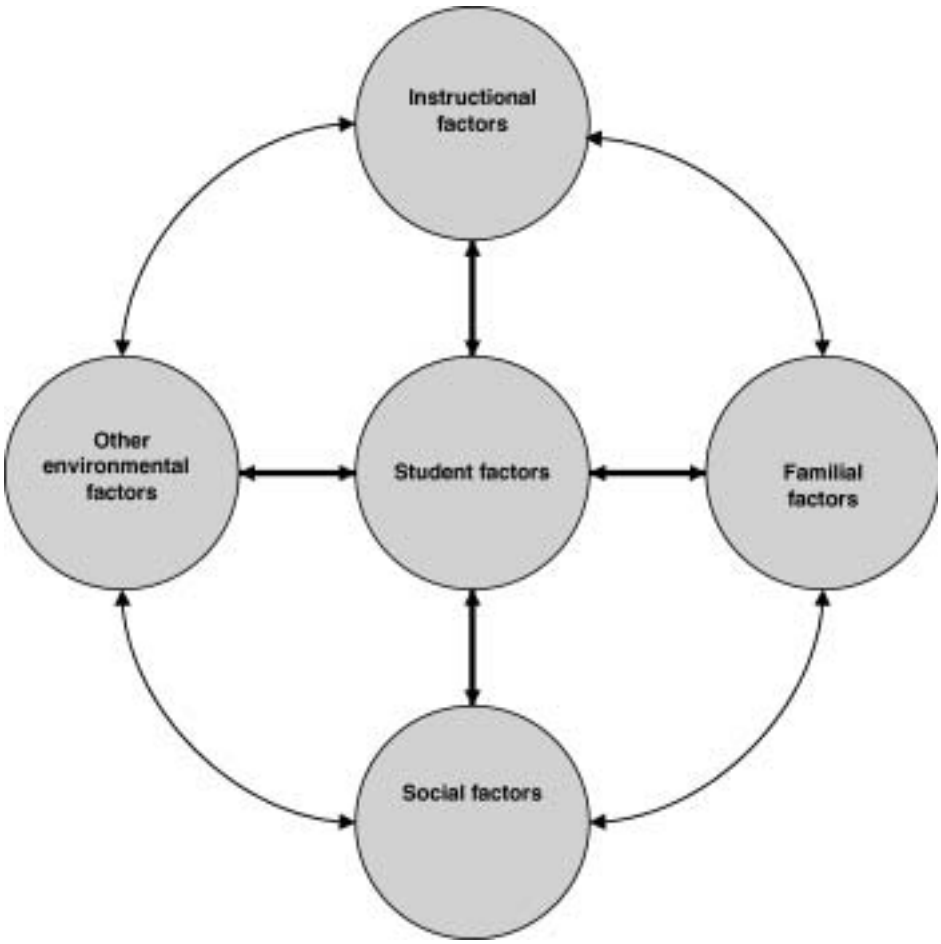

FIGURE 1.2. The interaction of student and environmental factors.

expectations, valuing, and intrinsic motivation); (2) *performance* (goal striving, strategy use, strategy monitoring and revision, self-monitoring, self-instruction, attention focus, self-recording, self-experimentation, and self-control); and (3) *appraisal* (self-reflection, self-judgment, performance evaluation, performance feedback, and self-satisfaction). The appraisal phase leads to subsequent modifications in preparation, performance, and appraisal, in a recurring cycle (see Figure 1.3) that decreases discrepancies between current and ideal performance (Pintrich, 2000b; Puustinen & Pulkkinen, 2001; Zeidner, Boekaerts, & Pintrich, 2000; Zimmerman, 1998a, 1998b, 2000a).

Unfamiliar, nonhabitual learning situations require conscious and deliberate attention to the phases of preparation, performance, and appraisal. When in familiar learning situations, learners proceed through the three phases of self-regulation automatically. However, not infrequently these automated strategies are inefficient, resulting in frustration and learning problems. Thus effective interventions—in truth, the focus of this book—encourage students to examine, evaluate, and modify their automatic and habitual strategies.

The aforementioned microprocesses involved in self-regulation can be organized by considering the domains of self-regulation across all three phases. That is, motivation, affect, behavior, time management, cognition, academic skills, and context can each be considered according to the phases of preparation, performance, and appraisal (Pintrich, 2000b).

For example, a successful self-regulating learner manages *motivation and emotions* throughout the three phases of self-regulation. In the first phase, preparation, the learner adopts effective

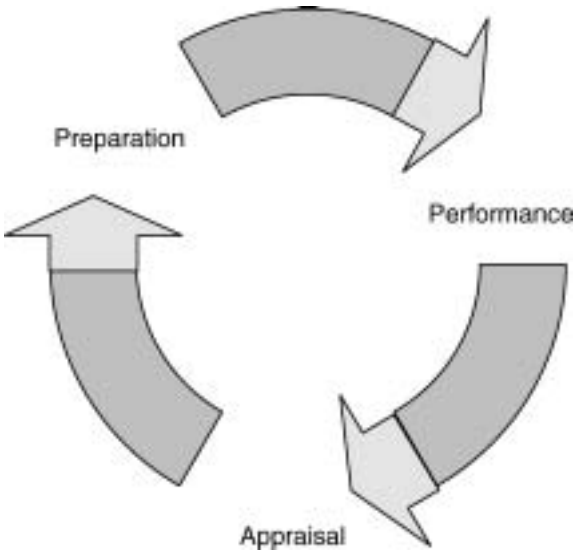

FIGURE 1.3. The self-regulation cycle.

goal orientations and attributions for success and failure, and appropriately accepts responsibility for his or her own learning. In the performance phase, the learner monitors and implements strategies to maintain motivation and regulate emotions. In the appraisal phase, the learner reflects on emotions and motivation experienced during the learning experience and uses those reflections to change future goals, attributions, and emotions.

Similarly, self-regulated learners apply methods of self-regulation to their *behavior and time management*. In the preparation phase, they set goals, plan their time, and break larger assignments into manageable components. In the performance phase, they monitor their behavior through self-observation and control the natural tendency to procrastinate. In the appraisal phase, they reflect on their performance and use those reflections to change their behavior and time self-management strategies in the future.

A self-regulating learner also manages *cognitive and metacognitive strategies* as well as *academic skills* throughout the three phases of self-regulation. In preparation, the self-regulated learner evaluates the current level of knowledge, sets appropriate goals, assesses the learning task, and selects appropriate learning strategies to code and store information. In the performance phase, a self-regulated learner strives to meet goals by implementing the strategies to complete the tasks. In the appraisal phase, a self-regulated learner self-assesses learning and uses those self-assessments to change learning strategies in the future.

Self-regulated learners also plan, monitor, reflect on, and control *contextual factors* that affect their learning (Pintrich, 2000b). In the preparation phase, they consider and adjust contextual factors such as the setting in which they study, the use of resources, partnering with a peer, or seeking help from an adult. In the performance phase, they monitor and adjust contextual factors to take into consideration success or the lack thereof. For example, they seek help when they are "stuck," even though they originally thought they could complete the task independently. Finally, in response to the appraisal phase, self-regulated learners modify contextual factors in subsequent learning experiences.

Finally, self-regulated learners also apply methods of self-regulation to their *physical and neurological well-being*, because these functions have a profound impact on the ability to study and learn independently. Clearly, all effective learning strategies are "brain-based"; the recent explosion of information resulting from new methods of analyzing brain functioning has led to the

emergence of the interdisciplinary field of developmental cognitive neuroscience, addressing complex interactions at the molecular, cellular, and behavioral levels. The simplest behavioral tasks involve activity in multiple neural pathways. Because biological systems are embedded in other systems, they are significantly affected by environmental variables, and learning has been found to change brain function in fMRI images, as well as neurological structures (Johnson, 1999; Young, 1994). For example, complex neural systems are involved in the regulation of emotion and motivation. Positive emotions can be distinguished from negative emotions by neurobehavioral features; rewards and positive affect are neurologically linked, as are negative experiences and depression (Forbes & Dahl, 2005). Although the brain's primary growth spurt occurs prenatally and during the first two postnatal years, those brain regions most critical to higher cognition—including reasoning and problem solving, self-regulation, personality, and strategic functioning—have a maturational course extending into adolescence and adulthood. The fact that the portion of the brain critical to self-regulation is still under development has obvious implications for high school and college students' ability to learn independently.

Hopefully, self-regulated students apply their self-regulation to employ regular exercise, maintain general health, and optimally manage any chronic physical disease. In the preparation phase, self-regulating students ensure that they have appropriate nutrition and adequately corrected vision and hearing for the work required. They obtain adequate sleep, because inadequate sleep has a detrimental affect on the ability to focus attention, monitor behavior, and learn (sleep deprivation has been found to be equivalent to the ingestion of two to three alcoholic drinks within an hour in terms of impairing the attention, vigilance, and task performance of medical residents; Arnedt, Owens, & Crouch, 2005). If necessary, self-regulated learners address insomnia by using "good sleep hygiene" (avoiding caffeine, irregular sleep hours, or distressing activities before bedtime), because insomnia not only leads to fatigue but is also associated with depression, anxiety, and alcohol and drug abuse (Taylor, Lichstein, & Durrence, 2003). During the performance phase, self-regulated learners ensure that they are physically comfortable and have adequate lighting. They avoid physical states that are inherently detrimental to learning success, such as drinking alcohol or abusing prescribed or illicit drugs. They also deliberately ration the amount of time they spend on intense studying, because expert learners know that taking regular breaks results in more efficient learning (expert musicians practice 4 hours per day, but take a rest after each hour, since practicing while fatigued is not only ineffective but can be harmful; Ericsson & Charness, 1994). In the appraisal phase, self-regulated students consider physical factors that may have contributed to or detracted from their success, and modify them accordingly during future learning sessions.

METHODS

Preparation

Assessment of Self-Regulation

Self-regulation, like other personality traits, can be considered relatively stable and enduring over time and place, as in a trait theory such as the "Big Five" personality dimensions (openness to experience, conscientiousness, introversion, agreeableness, and neuroticism; McCrae & Costa, 2003). In contrast, self-regulation, like personality, can also be viewed as highly responsive to situational variables, as in social learning theories that emphasize contextual variations in personality (Bandura, 1986; Mischel & Shoda, 1995; Patrick & Middleton, 2002; Winne & Perry, 2000). Finally, self-regulation, like personality, can be viewed from an integrated perspective that combines trait theories with contextual factors (McAdams & Pals, 2006). Assessment of self-regulatory

skills from a trait perspective includes interviews, questionnaires, and adult judgments. Assessment from a contextual/event-related perspective includes think-aloud methods, error detection tasks, trace methodologies, observations, and real-time measures. Because of its complexity, the assessment of self-regulatory skills is best conducted using an integrated approach incorporating both trait and contextual factors.

INTERVIEWS

In an unstructured interview, the student is asked to "tell me how you go about learning things for school," and the interviewer asks additional questions only as needed for clarification. As De Groot (2002) indicates, unstructured interviews can be very time-consuming, can be difficult to evaluate, and are highly dependent upon the skill of the interviewer.

In a semistructured interview, the consultant asks open-ended questions and follows up with more detailed questions as the student reveals areas of concern. One semistructured interview technique involves guiding the student in a self-assessment in six steps (Santa Rita, 1997). The consultant helps the student (1) consider goals and objectives; (2) identify barriers to success (e.g., time management, procrastination, lack of positive relationships with teachers); (3) analyze previous grades and other measures of achievement to identify patterns and trends; (4) analyze time expenditure; (5) assess study skills and habits, including note-taking, reading, and test-taking skills; and (6) reconsider goals and objectives. The reader is referred to Worksheet 1.2, Menu of Interview Questions About General Learning Skills for questions that might be used in such an interview.

In the semistructured interview approach developed by Zimmerman and Martinez Pons (1986), the student is asked, "Most teachers give tests at the end of marking periods, and these tests greatly determine report card grades. Do you have any particular method for preparing for this type of test in English or history? What if you are having difficulty? Is there any particular method you use?" (p. 617). Similar questions are asked about planning and writing a short paper outside of class, completing an assignment in class, and working when the student feels unmotivated. For each strategy mentioned, the student indicates how frequently she or he uses each strategy on a 4-point scale, ranging from "seldom" to "most of the time." Strategies are scored on Likert-type scales for the extent to which they reflect self-evaluation, organizing and transforming, goal setting and planning, seeking information, keeping records and monitoring, environmental structuring, self-consequences, rehearsing and memorizing, seeking social assistance, or reviewing records. The reader is referred to Worksheet 8.1 in Chapter 8, which can be used to score student responses to such a semistructured interview.

QUESTIONNAIRES

Questionnaires have been developed to assess students' self-regulation and study strategies. Some of these are completed by students themselves; others are completed by parents and teachers; and still others have parallel forms for students and adults. The latter are clearly the most useful for a collaborative problem solving approach. Unfortunately, the usefulness of self-report and parent/teacher report scales in assessing study skills and self-regulation is limited for several reasons. First of all, although questionnaires can provide helpful data about the use of learning strategies, motivational beliefs, and feelings about academics and school, they do not obtain the "critical information" that is available only through interviews (De Groot, 2002). Information obtained through questionnaires completed by students is also limited by the bias that affects self-reports. Even honest self-reporting is colored by individuals' inner standards if their inner standards are unique relative to the general population. For example, perfectionistic, highly organized persons

might describe themselves as "unorganized" because they are comparing themselves to unreasonably high standards. Other students might declare that they "have studied" when they have simply read over the material, because they do not know what studying entails.

Although the instruments that have been developed cannot stand alone as decision-making tools, they can be useful as stimuli for information gathering. Currently there are several questionnaires that consultants may be interested in using. The Behavior Rating Inventory of Executive Function (BRIEF; Gioia, Isquith, Guy, & Kenworthy, 2000) and the Behavior Rating Inventory of Executive Function—Self-Report Version (BRIEF-SR; Guy, Isquith, & Gioia, 2004) are intended to assess the executive function and self-regulation of students ages 11–18. The first is completed by an adult familiar with a student, while the second is individually administered to a student. Both scales yield subscale scores in behavioral regulation, inhibition, behavioral and cognitive shift, emotional control, initiative, working memory, planning and organization, monitoring, metacognition, and global executive skills. Reviewers of the BRIEF-SR (Benton & Benton, in press; Martinez Pons, in press) indicate that it is of limited usefulness, whereas reviewers of the BRIEF indicate that the tool has merit (Fitzpatrick, in press; Schraw, in press).

The School Motivation and Learning Strategies Inventory (SMALSI; Stroudt & Reynolds, 2006) is a self-report inventory appropriate for use with students ages 8–18. It is intended to identify poor learning strategies that have a negative impact on academic performance; it generates scores in study strategies, note-taking/listening skills, reading comprehension strategies, writing/research skills, test-taking strategies, organizational techniques, time management, academic motivation, test anxiety, and concentration and attention.

The Learning and Study Strategies Inventory—High School Version (LASSI-HS; Weinstein & Palmer, 1990) is designed to assesses high school students' attitude, motivation, time management, anxiety, concentration, information processing, ability to select main ideas, study aids, self-testing, and test strategies. It can be administered individually or in a group. Williams (1998) indicates that the norms of the LASSI-HS are not useful, but since it has good content and construct validity, it can help obtain information useful in developing interventions.

The Self-Regulation Strategy Inventory—Self-Report (Cleary, 2006) measures high school students' use of self-regulation strategies. The two motivational beliefs of task interest and perceived instrumentality converge as a higher-order factor. The three factor-analytically derived subscales are: seeking and learning information, managing the environment and behavior, and maladaptive regulatory behaviors. This scale can reliably discriminate between high- and low-achieving ninth and tenth graders.

The Motivated Strategies for Learning Questionnaire (MSLQ; Pintrich, Smith, Garcia, & McKeachie, 1991) was developed to assess self-efficacy, values, learning anxiety, cognitive strategies, metacognitive strategies, and resource management. Although it was standardized with college students, it is appropriate for both college and high school students. It is readily available, since the student services departments of many universities offer online versions for self-appraisal (see, e.g., www.ulc.arizona.edu/quick_mslq.html), and a paper-and-pencil version of the test is available for a modest price from its senior author at the University of Michigan. However, for psychometric reasons reviewers suggest that the MSLQ be considered a screening (or research) instrument (Benson, 1998; Gable, 1998).

The Survey of Teenage Readiness and Neurodevelopmental Status (STRANDS; Levine & Hooper, 2001) provides an overview of an adolescent's perceptions of his or her functioning through a combination of a structured clinical interview and a student-completed questionnaire. This self-report examines the relationship between metacognitive knowledge and psychosocial skills; subtests cover attention, memory, sequencing, language, visual processing, motor functions, organization strategies, higher-order cognition, school skills, school life, social life, school and work preferences, and reasons.

OBSERVATIONS AND BEHAVIOR SAMPLING

Often interviews and questionnaires are not sufficient for assessing self-regulation, because self-reporting is so often poorly correlated with actual behavior (Shiffman & Hufford, 2001). Therefore, supplementing interviews and questionnaires with observations and behavior sampling can provide more accurate information. This is done by deliberately seeking opportunities for students to demonstrate self-regulatory strategies or provide evidence that they have done so in the past.

Observations can occur in classrooms or one-to-one sessions. In both settings an adult observes a student at work and notes the percentage of time the student is on task, as well as any strategies that the student engages in to monitor behavior, such as self-coaching. In *trace methodology*, observable indicators of cognitive strategies, such as highlighting, underlining, creating mnemonics, and studying notes, are collected and examined (Winne, Hadwin, Stockley, & Nesbit, as cited by Puustinen & Pulkkinen, 2001). In *think-aloud* analysis, students stop and say whatever they are thinking when they are working or reading; adults record the students' responses and then analyze the responses for patterns (Sainsbury, 2003).

Error detection task analysis requires that adults develop nonsensical items directly from curriculum materials and use them to check student comprehension. Students can be asked to detect errors such as inconsistencies in reading material, missing elements in math word problems, and inaccuracies in music performance (Koch & Eckstein, 1995; Kostka, 2000; Schmitt, 1988; Stahl & Erickson, 1986; Van Haneghan, 1990; Zabrucky & Ratner, 1992).

Because data based on retrospective recall tend to be both biased and unreliable, *real-time measures* have been developed to ameliorate these effects (Shiffman & Hufford, 2001). One very effective method is to have students monitor the focus of their attention and their studying by recording their studying behaviors in a log. Often students are not aware of the amount of time they waste while "studying" until they keep such a log (Zimmerman et al., 1996). Maintaining a log can be as simple as keeping a weekly 3" x 5" card listing each subject and marking it with a hatch mark for each half hour of sustained attention. More complex logs indicating and evaluating particular activities are included among the worksheets in Chapter 7.

Finally, self-regulation strategies can be monitored in real time by using specially designed software that requires students to log strategies and behaviors at specific times, either generated by a random time sampler or at specific time intervals (e.g., every 5 minutes on the clock). For example, electronic experience diaries (Shiffman & Hufford, 2001) are most often used in medicine, but could be used to assess study habits. Hadwin and Winne (2001) describe a software program designed to foster and monitor psychology students' self-regulation; while complex, it suggests future promise in the development of technology as a tool for assessment, intervention, and promotion of these skills.

Performance

Fostering Self-Regulation

DEVELOPMENTAL FACTORS

Self-regulation may be thought to require some degree of formal operations thinking, insofar as it requires self-reflection and the ability to make and test hypotheses about barriers to self-regulation and learning. Given that most children do not even enter the beginning stages of formal operations thinking until about the age of 11 (Piaget & Inhelder, 1969), and that even many adults exhibit formal operations thought only in areas in which they are expert (Neimark, 1979), it might be concluded that most students are not capable of self-regulatory thinking. However,

research has demonstrated that this is not the case. While older individuals are clearly more proficient in formal operations thinking, such thinking is also promoted by direct instruction (Laurendeau-Bendavid, 1977). Furthermore, even students as young as second grade have been found to profit from direct instruction in self-regulatory processes in writing (Perry, 1998). As they achieve success through their selection of learning strategies, students develop positive self-efficacy and attribution, link positive emotions to learning, improve their motivational states, and progress from lower-level to higher-level cognitive skills. These experiences result in the development of self-regulation.

CONTEXTUAL FACTORS

The development of self-regulatory strategies is affected by the context experienced by the learner—including the social context provided by peers, parents, and teachers, as well as the learning environments created in the classroom, school, and home (Puustinen & Pulkkinen, 2001). Self-regulated learning is least likely in highly structured settings where goals are set by others, such as classroom settings with teacher-dictated learning experiences. Conditions that foster self-regulated learning are opportunities to learn, a student-perceived need to learn, affectively charged goals, and contexts that either foster autonomy or are natural (Boekaerts & Niemivirta, 2000; Pintrich, 2000b).

> **Jennifer** is such a gifted soccer player that as an eighth grader she already is receiving tentative offers from college soccer coaches. She began playing soccer at the age of 2, when her 8-year-old brother and father (a former soccer player) began teaching her how to dribble the soccer ball. She was always included in the neighborhood pickup games with her brother's friends, and she and her parents attended every league and school-sponsored game in which her brother played. Jennifer first played on an organized team at the age of 6, and her family has provided ongoing support for her participation in the sport. She loves the game and plays at every opportunity. Jennifer developed superior soccer skills because she had optimal learning conditions: natural physical coordination, enthusiasm, social support, and guided practice that led to her high motivation, hours of practice, and eventual self-regulation.

According to Zimmerman (2000a), the ability to self-regulate is developed primarily through social cognition (Bandura, 1986). The child first observes the self-regulation displayed by parents, siblings, peers, and teachers closely enough that he or she is able to discern important strategy features. The child then imitates these strategies under another's guidance, thereby developing the ability to control emotions, motivational state, cognitive strategies, and performance and behavior under structured conditions. When the child displays these self-regulatory strategies independently, he or she has reached the level of self-control. At the most advanced level, the child generalizes self-regulation strategies to new and diverse situations.

Such learning usually occurs incidentally without direct or deliberate instruction. When a child is exposed to positive models, this can work quite well. However, many students are regularly exposed to models with poor self-control and self-regulation (e.g., parents with poor emotional control, or siblings or peers with poor study skills). These experiences result in learning maladaptive strategies, and interventions in which the students are directly taught successful self-regulatory strategies are needed.

OTHER FACTORS

Dysfunction in self-regulation relative to study skills can also be a result of students' being reactive rather than proactive in their approach to studying, their lack of interest in a particular sub-

ject, or a trait such as a learning disability (Zimmerman, 2000a). In addition, self-regulation dysfunction often "appears" when a student moves from highly structured contexts to contexts that depend on self-regulation. For example, many graduate students who excel in structured learning contexts, such as classes with reading lists and specified writing assignments, flounder when they are required to learn and produce independently.

> **Wanda** completed her undergraduate and graduate work with distinction: She finished her undergraduate work with high honors in 3 years, and the coursework for her doctorate with a 4.0 grade point average, in another 3. Six years after she completed her doctoral coursework, however, she has still not completed her dissertation. Although her proposal was accepted, she has neither finished the comprehensive literature search nor collected preliminary data, despite many meetings with Dr. Ray, her dissertation chair. Although Dr. Ray perceives Wanda to have the potential to become an accomplished scholar, he is beginning to admit that she is highly likely to join the 50% of doctoral students who do not obtain doctorates because they never develop the high level of self-regulation needed to complete a dissertation.

Collaborative Consultation

Self-regulatory skills are best taught in a problem-solving approach in which a student, parents, teacher, and consultants collaborate. In this model, each individual has distinct areas of expertise (Kampworth, 2006; Sheridan, Kratochwill, & Bergan, 1996) and students attend school meetings as "experts on themselves." For example, traditional parent–teacher conferences can be reformulated into student-led conferences in which the student explains to adults the work that he or she has self-evaluated and collected in a portfolio (Amatea, Daniels, Bringman, & Vandiver, 2004; Austin, 1994). In the spirit of this model, this chapter on working with students addresses consultation.

Problem-solving consultation identifies general and specific consultation goals, timeframes, confidentiality limitations, and responsibilities of each participant. Meeting notes are taken; an action plan is developed; and every participant leaves each meeting with at least one concrete task to perform in order to help the student (Amatea et al., 2004). Often it is helpful to develop a contract with each person's responsibilities clearly specified (Zins & Erchul, 2002).

The steps involved in "student expert" collaborative consultation are incorporated into Worksheet 1.3, Problem Identification and Intervention Selection Tool, and Worksheet 1.4, Consultation Outcome Monitoring Tool and are summarized within Worksheet 1.1. In this type of consultation, the first step is to *establish collaborative partnerships* and include the student as a full member of the consultation team. Rapport is built with all members; particular care is taken to be sensitive and responsive to differences due to culture/ethnicity, age/generation, and time/work responsibility, and to keep all members engaged throughout all process phases. Using information from all sources, particularly the "student expert," the team then collaboratively *identifies and analyzes the problem*, defining it in specific, measurable, and behavioral terms. The team members also determine the actions that have already been taken to address the problem; gather (or have the student gather) baseline data about the frequency, duration, and severity of the problem; identify the time of day, situations, or conditions most associated with the problem *and* those most likely to alleviate the problem; identify consequences that are helping to maintain the behavior; identify consequences that could be used to reinforce improved performance; assess other environmental variables, such as expectations and attitudes of friends, peers, family members, and others; collaboratively agree upon the acceptable level of performance; and identify resources such as the student's strengths, helpful materials, and supportive individuals. After conducting this assessment, the team *develops a list of possible interventions* by asking the student,

parent(s), and teacher(s) what they would like to do next to solve the problem; delineating positive and negative aspects of each possibility; and assessing the need for guided intervention instruction or modeling. The team then *selects* interventions, timeframe, responsibilities, and implementation strategies. Once these selections are made, the interventions are *implemented*, using guided instruction or modeling as necessary. Members of the team then *assess* (or have the student assess) implementation success and modify interventions; *implement* modified interventions and reevaluate success; *develop strategies to promote generalization and student self-regulation*; *implement* these strategies; *reassess* (or, preferably, have the student assess) successes and failures and appraise need for continued intervention use; and return to previous step(s) as appropriate.

Several potential barriers to successful consultation are associated with each step of the consultation process (Ingraham, 2000; Meichenbaum & Turk, 1987; Zins & Erchul, 2002). Collaborative relationships may be hindered by unsatisfactory interpersonal relationships; insufficient communication skills; inadequate interpersonal skills; insufficient involvement or participation on a member's part; dissatisfaction with one another's skills; or insensitivity about relevant cultural, racial, ethnic, gender, or other issues. Participants may also sometimes undermine the consultation process by not engaging in active problem solving, implementing recommendations, challenging unacceptable outcomes, or clarifying problems or interventions. Such disengagement is most likely when an individual's input is ignored or devalued; when follow-up strategies are not implemented; or when irrelevant, limited, or vague interventions are recommended (Slonski-Fowler & Truscott, 2004). Time constraints are often problematic as well. Parents and educators often feel overloaded and pressured for time, and teachers sometimes feel as though time spent in collaborative consultation detracts from the time they need for meeting classroom responsibilities. Finally, students sometimes perceive themselves as passive recipients rather than as active team members.

Difficulties with interpersonal relationships can be manifested by any of the team members: students, parents, and/or teachers. To ameliorate these difficulties, positive interpersonal relationships can be fostered by establishing and nurturing rapport, respect, trust, and collaborative problem solving among participants throughout the process. It is also important to encourage full participation of every member throughout all stages of the consultation process. Collaboration is fostered by the development of common vocabulary and fluency in each other's "language." Concerns about time need to be directly discussed and addressed by careful time management and ensuring that consultation results in meaningful gains. Students can be encouraged to be active members of their own team through being included in the collaborative process, being carefully listened to as "experts" about themselves, and by encouraging them to think positive affirmations such as those found in Table 1.1.

Consultation in multicultural settings requires unique sensitivity and skills. Ingraham (2000) has identified five components of multicultural school consultation: (1) consultant learning and development, (2) consultee learning and development, (3) cultural diversity in consultation con-

TABLE 1.1. Student Affirmations about Independent Learning

- I work as a team member with my teachers and parents.
- I am responsible for my own learning.
- I am a self-starter, and I persevere.
- I have good study skills, and I use them.
- I put forth the necessary effort to learn well.
- I monitor how well my strategies work, and then I change them as needed to improve my performance.

stellations, (4) contextual and power influences, and (5) methods to support consultee and client success. She points out that "it is not the race of the consultant but the attentiveness and responsiveness of the consultant to racial issues brought up in the session that determines ratings of consultant effectiveness and multicultural sensitivity" (p. 324). Cultural differences often result from differences in race or ethnicity. However, they also often result from differences in socioeconomic status, professional identity (the teaching profession might be considered a different culture from that of psychology), or generation/age (there is often a considerable cultural difference between a student and the adult members of the team!).

Addressing interpersonal difficulties stemming from cultural differences requires that adults:

- Develop an understanding of their own culture.
- Develop an understanding of the impact of their own culture on others.
- Respect and value others' cultures; seek feedback and cultural guides; and take care to value multiple perspectives when framing the problem.
- Respect individual differences within cultural groups.
- Understand the impact of multiple cultural identities on individuals.
- Acquire cross-cultural communication methods and multicultural approaches for developing and maintaining rapport, matching methods to the consultee's style.
- Understand appropriate consultation and interventions, given the cultures of students, parents, and teachers in the collaborative relationship.
- Create emotional safety, yet balance emotional support with new learning.
- Provide support in order to build confidence and feelings of self-efficacy.
- Seek systems interventions to support learning and development.
- Model bridging and other processes for cross-cultural learning.
- Continually increase knowledge, skill, objectivity, and reflective thinking.

Given that cultural differences result (as noted above) from differences in age/generation, socioeconomic status, and professional identity, as well as from race and ethnicity, the challenges are many. As Ingraham (2000) indicates, "There is always more to learn" (p. 343).

Problem identification and analysis can be hindered when a student, parent, or teacher does not believe that a problem exists. In particular, the student clearly must agree that a change needs to occur. Successful problem identification and analysis is dependent upon the participants' (1) problem-solving skills; (2) ability to clearly define and analyze attributes of the problem behavior, including its antecedents and maintenance factors; and (3) ability to take into consideration the instructional context, including the situation, tasks, and teaching methods (Rosenfield, 1995). Barriers related to problem identification can be ameliorated by careful attention to each participant's description of the problem, what they have done to solve the problem to date, and additional ideas they have to address the problem (Ortiz & Flanagan, 2002).

Students, teachers, parents, and other educators can be unmotivated or resistant to implementing interventions for a number of reasons. Participants may:

- Doubt that an intervention will be helpful.
- Doubt that they have the skills and knowledge necessary to carry out the intervention.
- Consider the intervention too complex or costly in terms of time or resources.
- Consider the intervention intrusive.
- Feel overwhelmed by an intervention of long duration.
- Find that the intervention does not result in immediate and obvious benefits.
- Have strongly habituated responses.
- Perceive the intervention as a threat to self-image.

- Perceive that there is insufficient support for appropriate implementation.
- Be experiencing personal stress from some other source.
- Experience cognitive dissonance with the concept behind the intervention (e.g., may believe that a positive reinforcement is a "bribe").

To deal with such resistance, the consultant should determine its source, reinforce collaborative and positive interpersonal relationships, and address the resistance realistically by modifying the plan or obtaining additional resources (Kampworth, 2006). Discomfort with sharing "turf" can be minimized by an "exchange of expertise," whereby general education teachers usually provide expertise in curriculum content and consultants usually provide expertise in learning and behavior management strategies. A consultant can provide direct instruction in study skills and metacognition in a classroom, while the regular education teacher acts as a support, followed by a consultants' serving a supportive role by providing extra support for at-risk students working in a small group (Goldberg, 1995).

An instrument called Outcomes: Planning, Monitoring, Evaluating (PME; Stoiber & Kratochwill, 2001) can be used to facilitate the collaborative process. As its name indicates, it provides a procedure to plan, monitor, and evaluate the outcomes of social and academic service delivery programs. This tool helps education teams identify concerns, consider context, measure baseline performance, monitor and graph student progress, evaluate intervention effectiveness, and plan next steps.

Instruction in Strategies

Throughout this book, strategies are recommended to facilitate student functioning. These include cognitive study strategies; methods to improve metacognition and executive skills; and processes to facilitate self-regulation of affect, motivation, and behavior. Many of these strategies will require direct instruction in order for students to become skilled and capable of generalizing them to multiple settings. For students to become independent in their use of strategies, educators must first model the strategies, teach the strategies, empower the students to become independent, and then foster generalization across contexts.

As Gleason, Archer, and Colvin (2002) recommend, first adults model a strategy while exaggerating critical steps, verbally describing the process, and "thinking aloud" questions and comments. Then the adults guide students in their initial attempts at using the strategy, augmenting students' questions and comments with their own. The students are then provided with at least three guided practice sessions with varied materials, decreasing guidance with each session. Finally, the adults determine whether the students can use the strategy independently; the students self-appraise their ability to use the strategy; and the students appraise the effect the strategy has had on their learning. These steps are included in Worksheet 1.1.

When a student is having particular difficulty grasping and applying a new procedure, *self-instruction* can be helpful (Alberto & Troutman, 1995). Boone (1999) investigated the effectiveness of "self-directed instruction" on students' attention, study skills, and grade averages for reading, mathematics, science, and social studies, in comparison with those of a group receiving "teacher-directed study skills instruction" and a control group receiving no instruction. Boone found that self-instruction improved study skills and reduced attention problems. In teaching self-instruction as defined by Meichenbaum and Goodman (1971), an adult follows these steps:

1. The adult ensures that the student understands the purpose of the task.
2. The adult completes the task while talking aloud, modeling problem definition, attention focusing, self-encouragement, self-evaluation, and correction (cognitive modeling).

3. The student completes the task, following the adult's verbal directions (overt external guidance).
4. The student completes the task while self-instructing aloud (overt self-guidance).
5. The student whispers self-instructions while completing the task (faded overt self-guidance).
6. The student completes the task, self-guiding with private speech (covert self-instruction).
7. The student collects data on behavior and assesses the outcome.

With increasing success, external supports are removed so that the student independently approaches learning tasks in an orderly manner (Borkowski & Burke, 1996). Steps to facilitate generalization of study strategies to new learning situations are discussing the benefit experienced by using a previously learned strategy; encouraging the student to enumerate at least three additional settings in which the strategy might be beneficial; encouraging the student to apply the strategy in at least three settings, while monitoring both strategy use and learning success; having the student self-appraise the use of the strategy in multiple settings; and having the student self-appraise learning success after using the strategy in multiple settings. These steps are also included in Worksheet 1.1.

When the school psychologist, **Mr. Jones**, received his fourth referral from the sixth-grade math and science teacher, Ms. Kinsel, he noticed that the referred students all were doing very well in language arts and social studies but failing in math and science. Their sixth-grade language arts and social studies teacher, Ms. Clavier, was extraordinarily organized. She taught her students how to follow routines, how to use assignment notebooks, how to organize notebooks, and how to take lecture notes. Every student knew what to do upon entering the class after the bell, where to place completed assignments, and what to do with free time after completing assignments. In contrast, Ms. Kinsel had a chaotic classroom. Much of each period in her class was spent in transition activities. Students did not know when or where to submit completed assignments, and they were often lost. Unit tests were composed of problems that had been assigned as homework, whether or not they had been actually completed. Little instruction occurred, and misbehavior increased as some students delighted in tormenting their absent-minded teacher. Mr. Jones observed in both classrooms and noticed that Ms. Clavier's class had many characteristics that fostered study skills, while Ms. Kinsel's had very few. He approached Ms. Kinsel with suggestions about improving organization, but she declared that being organized wasn't her style: she thought of herself as a "creative scientist" and wasn't interested in following or imposing "rules." Mr. Jones *was* able to convince Ms. Kinsel to write assignments on the board and have a bin for completed assignments. With her permission, he met with the class members and brainstormed ways they could use the same strategies in math and science that they used in language arts and social studies. The students admitted that they could take notes and use assignment books, even if doing so was not required.

Appraisal

Appraising self-regulatory strategies requires revisiting those strategies that have been employed during a learning experience and determining whether or not they have been effective. Students can be assisted in developing these skills via daily or weekly "coaching" sessions, during which the students review completed activities and apply the questions "What did I do?", "How well did it work?", and "What do I need to change?" (Dawson & Guare, 2004). In addition, many of the assessment strategies discussed above, such as guided self-evaluation, interviews, questionnaires, and trace methodology, can be useful tools in the appraisal process. Worksheets and handouts to

assist in the use of these techniques are included at the end of each chapter. Although these subjective techniques are helpful to assess strengths and weaknesses in self-regulation, they should be augmented by quantitative outcome measure data (such as pre- and postintervention scores on weekly or unit tests, curriculum-based measurement scores, and grades). Adults should also help students develop Personal Learning Guides as described below.

Help Students Develop Their Personal Learning Guides (HILLs)

A Personal Learning Guide can be a very effective tool to encourage self-appraisal in regard to developing self-regulation of study skills. Each student's Personal Learning Guide is a sturdy loose-leaf binder into which the student inserts materials tailor-made for his or her personal learning. The intent is for this to be a resource that will be maintained and modified annually, throughout the student's life.

At the elementary and middle school levels, students might be encouraged to label their Personal Learning Guides their How I Like to Learn (HILL) Binders. The acronym HILL is an easily understood metaphor for the challenges (hills or obstacles) they will encounter in learning. Some challenges will be small and readily overcome; others will be more stressful; and some will require a great deal of persistence and application of study skills. Those that are small and readily overcome might be considered small bumps in a road, while the most challenging could be considered mountains—challenging but surmountable with great perseverance. Relative to self-regulation, students can include in their Personal Learning Guides forms and notes regarding strategies that they have found to be particularly effective. Materials pertinent to this topic and appropriate for inclusion in the self-regulation portion of the Personal Learning Guide includes the following:

Worksheet 1.1. Checklist of Strategies to Promote Independent Learning
Worksheet 1.2. Menu of Interview Questions about General Learning Skills
Worksheet 1.3. Problem Identification and Intervention Selection Tool
Worksheet 1.4. Consultation Outcome-Monitoring Tool
Table 1.1. Student Affirmations about Independent Learning

WORKSHEET 1.1.

Checklist of Strategies to Promote Independent Learning

Assess skills.	
	1. The student's self-regulatory traits were assessed, using semistructured interviews and questionnaire (see Worksheet 1.2 and Chapters 4–5).
	2. The student's self-regulatory behaviors and strategies were assessed, using think-aloud methods, error detection tasks, trace methodologies, observations, and/or real-time measures (see Chapter 6–12).
Establish collaborative partnerships in a team composed of the student, parent(s), teachers, and other educators.	
	3. The student is included as a full member of the consultation team.
	4. Rapport is built with all members; differences due to culture/ethnicity, age/generation, and time/work responsibility are respected.
	5. All members remain engaged throughout the process.
Collaboratively identify and analyze the problem.	
	6. The problem is defined in specific, measurable, and behavioral terms.
	7. The actions that have already been taken to address the problem are defined.
	8. Baseline data are gathered (preferably by the student) about the frequency, duration, and severity of the problem before any new intervention is implemented.
	9. The conditions most closely associated with the problem are determined.
	10. The conditions most likely to alleviate the problem are determined.
	11. The consequences that are helping to maintain the behavior are determined.
	12. The consequences that could be used to reinforce improved performance are identified.
	13. Expectations and attitudes of friends, peers, family members, and others are considered.
	14. Home variables are considered (see Chapter 2).
	15. Classroom variables are considered (see Chapter 3).
	16. The team collaboratively agrees upon the acceptable level of performance.
	17. Resources such as the student's strengths, helpful materials, and supportive individuals are identified.
List and select possible interventions.	
	18. The student, parent(s), and teacher(s) are asked what they would like to do next to solve the problem.
	19. Positive and negative aspects of each possibility are delineated.
	20. The need for guided intervention instruction or modeling is determined.
	21. One or more interventions are selected.
	22. Timeframe is determined.
	23. Implementation strategies are determined.
	24. Responsibilities for each team member are designated and written in a contract, which is signed by all team members.

(continued)

Checklist of Strategies to Promote Independent Learning *(page 2 of 2)*

Implement interventions, initially through guided instruction and modeling.	
	25. An adult ensures that the student understands the purpose of the task.
	26. The adult models the strategy while exaggerating critical steps such as problem definition, attention focusing, self-encouragement, self-evaluation, and self-correction, and while verbally describing the process and "thinking aloud" questions and comments.
	27. The adult guides the student in initial attempts at using the strategy, augmenting student questions and comments with his or her own.
	28. The student completes the task while self-instructing aloud.
	29. The adult provides the student with at least three guided practice sessions with varied materials, decreasing guidance with each session. The student fades to whispering and self-guiding with private (silent) self-direction while completing the task.
	30. The adult determines whether the student can use the strategy independently.
	31. The student self-appraises his or her ability to use the strategy.
	32. The student appraises the effect the strategy had on his or her learning.
Modify interventions if the success of the implemented interventions is less than desired, using steps 1–24 above.	
Implement modified interventions and reevaluate success, using steps 25–32 above.	
Reassess (preferably have the student assess) success and appraise need for continued use.	
Return to previous step(s) as appropriate.	
Develop and implement strategies to promote generalization and student self-regulation.	
	33. Discuss with the student the benefit experienced from using the strategy.
	34. Encourage the student to enumerate at least three additional settings in which the strategy might be beneficial.
	35. Encourage the student to apply the strategy in at least three settings while monitoring both strategy use and learning success.
	36. Have the student self-appraise the use of the strategy in multiple settings.
	37. Have the student self-appraise learning success after using the strategy in multiple settings.

WORKSHEET 1.2.

Menu of Interview Questions about General Learning Skills

Student _____ Date _____

1. What are five jobs you might like to have as an adult?

2. What are your learning goals for this year?

3. What do you do especially well? What are your strongest skills and abilities?

4. What do you do least well?

5. What are the barriers to your success in school? (Examples might include poor time management, procrastination, or a lack of positive relationships with your teachers.)

6. Looking at your cumulative file, previous report card grades, achievement test grades, and grades on papers and tests, what do you see in terms of patterns and trends?

(continued)

Menu of Interview Questions about General Learning Skills *(page 2 of 2)*

7. Describe how you spend your time outside of school/class.

8. Describe your study habits, including note taking, reading, and studying for tests.

9. Looking at your study aids (schedules that you make, readings that you have highlighted or underlined, mnemonics you use to help you remember, notes you have taken, and outlines/flashcards/study guides you have made), what patterns do you see? Which work best for you?

10. While completing some work, catch yourself every few minutes and identify what you are thinking about.

11. For the next day (or week), keep track of exactly how and when you study and complete homework by maintaining a Homework Log, or keeping a weekly 3" $\times$ 5" card listing each subject and marking it with a tally mark for each half hour of sustained attention. What patterns do you notice?

WORKSHEET 1.3.

Problem Identification and Intervention Selection Tool

Date _____

Collaboration team members: Student _____ Parent(s) _____

Educators _____

1. Problem identified and analyzed:
   a. Specific, measurable, and behavioral definition of the problem:

   b. Actions that have already been taken to address the problem:

   c. Baseline data about the frequency, duration, and severity of the problem behavior:

   d. Time of day, situations, or conditions most associated with the problem behavior:

   e. Time of day, situations, or conditions most likely to alleviate the problem behavior:

   f. Consequences that are helping to maintain the behavior:

   g. Positive consequences that could be used to reinforce improved performance:

   h. Other environmental variables, such as expectations and attitudes of others:

   i. The acceptable level of behavior:

   j. Resources (such as the student's strengths, helpful materials, and supportive peers and adults) that can be used for intervention implementation:

(continued)

Problem Identification and Intervention Selection Tool *(page 2 of 2)*

2. All team members' ideas about what they would like to do next to solve the problem:

3. Possible interventions and their positive and negative aspects:

4. Selected intervention(s):	Person(s) responsible:	Implementation date(s):

WORKSHEET 1.4.

Consultation Outcome-Monitoring Tool

Date _____

Collaboration team members: Student _____ Parent(s) _____

Educators _____

1. Initial assessment of implementation's success, using (baseline) data measures about the frequency, duration, and severity of the problem behavior. Date: _____

2. Modification of interventions needed:

3. Assessment of modified implementation's success, using (baseline) data measures about the frequency, duration, and severity of the problem behavior. Date: _____

4. Strategies to promote generalization and student self-regulation:

5. Reevaluation of implementation's success, using (baseline) data measures about the frequency, duration, and severity of the problem behavior. Date: _____

6. Six-month follow-up results. Date: _____

7. One-year follow-up results. Date: _____

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