

## Students' Reflective and Critical Thinking

To what extent do your students think about their own thinking and learning? How skilled are they at assessing their knowledge, thoughts, and actions? What are their strengths and weaknesses in reflective and critical thinking? What strategies enhance such thinking? Think about your own reflective and critical thinking skills and when, why, and how you use them in academic and everyday life activities. How did you acquire them?

Many experts have acquired their most valuable reflective and critical skills without a conscious awareness of their existence and without recognizing that some students lack these skills. In his classic book, *How We Think*, Dewey (1933) defined reflective thinking as "Active, persistent, and careful consideration of any belief or supposed form of knowledge in the light of the grounds that support it and the further conclusions to which it tends." Experts differ from novices in how they think and what strategies they use.

Reflective and critical thinking involve both reflection on action and reflection in action, as described by Schon in his classic works on reflective practice. Numerous strategies can help students become more reflective, critical thinkers and learners. Some of the important thinking skills discussed in this chapter include critical thinking, memory strategies, being a self-directed learner, low- and high-level cognitive skills, time management, and test-taking skills.

Students generally learn and appreciate these techniques best when they are applied to specific content in specific courses and academic tasks. The second half of this book addresses reflective and critical thinking in specific subjects. This chapter concentrates on general characteristics of critical and reflective thinking that transcend specific academic content. Chapter 7 on assessment has a rubric for evaluating critical thinking. It also discusses an error analysis procedure to help students critically evaluate their own past academic performance, master the material they missed or didn't apply effectively, and plan for future improvements.

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### ✧ Critical Thinking

Critical thinking has both cognitive and emotional components. Cognitive components include analyzing and judging assumptions, evidence, and arguments. Emotional components include openmindedness, inquisitiveness, and truth

seeking. Teaching for critical thinking involves helping students to reflect on, analyze, and evaluate their thinking before, during, and after learning. These types of thinking can help students to determine their progress and decide what to believe or do. Reflection in action helps students analyze and evaluate their behaviors and connect them with their feelings while they are working. The purpose is to increase understanding and use this enhanced understanding to inform actions so that they can be performed more effectively in an ongoing situation. Reflection on action helps students learn from their own past performance so they can think and learn more effectively, improving planning for how they will approach tasks in the future.

Novice critical thinkers tend to have preconceptions about the nature of knowledge and view it in terms of the quantity of information regardless of its quality. To them, assessment of their effectiveness comes from outside sources, especially authority figures, rather than from themselves. Help your students learn to think critically before they get to college so that they will be more successful in their college courses. Many beginning college students tend to think "dualistically," dichotomizing the world into two realms, such as good versus bad, right versus wrong, us versus them, or success versus failure. They believe there is one right answer to each problem and that authorities know these answers. They believe that these answers should be memorized by hard work. They also believe there is only one way to correctly approach a task or problem, and don't recognize that often there are several alternative, acceptable approaches. (For more details on the theory underlying these ideas, visit the Perry Network: <http://www.perrynetwork.org/>.)

By the time students leave college they are more likely to think critically, by thinking more in terms of "multiplicity" and "relativity." Multiplicity refers to recognizing there is a diversity of legitimate opinions and values where right answers aren't known yet. Everyone has a right to one's own opinion and no one can claim that an opinion is wrong. Relativity refers to knowledge being qualitative and dependent on the context in which it occurs. Analyses and comparisons are made possible by recognizing diverse opinions, values, and judgments, which are derived from evidence, logic, and coherent, reliable sources.

How can you help your students become better critical thinkers? Strategies include encouraging them to think aloud and make graphic representations of their work, such as papers they are writing or problems they are solving. These strategies are effective because they externalize the students' thinking processes, which makes it easier for students to evaluate their own thinking objectively. Once again, awareness facilitates control over thinking.

Self-questioning is another powerful technique that promotes critical thinking. By asking and answering questions such as "How can I state this in my own words?" or "Does this make sense?" students are directed toward reflecting on and critically evaluating what is understood, what is unclear, and what is and isn't known. In the process of answering such questions, students sometimes discover that their initial understanding was incomplete or incorrect. This discovery can reveal some important preconceptions that interfere with learning.

TABLE 6.1 Critical Thinking Checklist

Critical Thinking Behavior	Progress Rating	Critical Thinking Behavior	Progress Rating
Understand the question/task		Differentiate fact from opinion	
Know how to approach the question/task		Differentiate main from supporting ideas	
Express ideas clearly		Judge ideas for quality	
Elaborate on ideas adequately		Judge quality of source	
Organize ideas logically		Make logical deductions	
Ensure answer is complete		Interpret information accurately	
Verify answer fits question		Make appropriate inferences	
Check answer for mistakes		Ensure evidence supports conclusion	
Remember important concepts		Consider multiple points of view	
Stay openminded		Reflect on action, before and after actions occur	
Be aware of biases		Reflect in action, while actions are occurring	
Recognize assumptions		Analyze quality of arguments	

Some people prefer checklists to self-questioning. Students and teachers can use checklists to assess their application of critical thinking skills. Help your students develop their own progress charts or checklists. A sample critical thinking checklist might include the behaviors in Table 6.1, and progress could be rated on a scale from 1 to 5 indicating none to extensive.

This is an analytical approach to evaluating critical thinking because it rates each behavior separately. A rubric for holistically evaluating critical thinking is in Chapter 7 on assessment.

## ✦ Remembering Reflectively

"Last week I taught my students how to factor polynomials. At the end of the week most students did it by themselves and did it perfectly. At the beginning of the next week we were almost back to ground zero."

What happened in such a short time? Have you experienced teaching something only to find that it has been forgotten by the next class? Just because students seem to follow along with a lesson in class doesn't guarantee they can remember, understand, and/or apply what was "learned." A frustrating

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circumstance for many students is the fact that they "study hard," but frequently cannot remember or apply the material. These students often try to overcome the problem by "studying harder," but because they continue to study in ineffective ways, the material is still not remembered or used effectively. As a result they may believe that they suffer a learning deficiency or simply don't have the ability to learn whatever they are studying. The solution is more often studying *smarter* than studying *harder*.

Try the learning activity that follows, which is designed to help you work with students who have trouble remembering.

**Learning Activity:** Study the list of words below for one minute only. Try to remember all the words on the list. The order is not important.

1. List: piano, chair, saxophone, table, guitar, drums, toothpaste, bed, lamp, desk.
2. Cover the list and write as many words from it as you can remember in any order.
3. Compare the list of words from step 1 with the list you wrote for step 2.

How did you try to remember those words? What method(s) did you use?

There are many different ways of remembering information. Some ways are generally better than others, but much depends on such factors as the individual, content, and purpose. The simplest memory strategy is repetition—stating the material over and over again—exactly the way it was presented. This strategy is called rote learning. Rote learning is characterized by memorizing isolated pieces of information and/or memorizing without understanding. Rote learning works quite well if you look up a phone number and repeat it over and over as you dial. It may work well for remembering a social security number or home address, but it is one of the least effective strategies for most academic work. Sadly, it is a commonly used approach for many students who think they have trouble with their memory. The problem is not their memory. The problem is their method of remembering.

When asked to define "effective learning," two categories emerged from teachers' responses: long-term retention and application, including transfer to new situations. Meaningful learning requires students to make connections between new information and information they already have. In meaningful learning, the learner tries to make sense of all the information even when it seems that there are many separate and distinct pieces of unconnected data. Students who use meaningful learning will normally try to organize or group information according to some common theme. The common theme joins the separate information into groups rather than many pieces. If separate pieces of information can be remembered as one group, the task of remembering is greatly simplified. For example, in the learning activity above, all the terms except one could be organized into two groups: musical instruments and furniture. Toothpaste stands out because it doesn't fit in either group. Information that stands out tends to be remembered more easily.

The particular organization of material sometimes depends on the individual. Frequently, organization that is helpful for one learner is of limited value for another. At the same time, some organization is almost always better than

none at all. Due to our limited capacity to hold information in our short-term (working) memories, we need to find economical and powerful ways to organize and represent information. Effective organization and representation strategies can help learners best utilize their memory capacities. Common memory strategies that are forms of rehearsal include rereading material; using flash cards; reciting names, concepts, or definitions; and underlining/highlighting. Other common approaches involve mnemonic techniques of simple associations such as first letters, locations, and images.

Ask your students to reflect on and critically evaluate their memory strategies. The best memory techniques tend to be those that emphasize the learner's use of prior knowledge. Using prior knowledge enhances meaningfulness through active, personal construction of ideas and their relationships. Effective memory techniques are those that emphasize insight into concepts and relationships instead of memorization of them. The more concepts and their relationships are understood, the lighter is the burden on memory.

The goal is also important when it comes to memory. Many times students want to remember material only long enough to use it for a test. When remembering is done with this goal in mind, students usually treat the material to be learned very superficially. This goal is usually short-sighted. In many cases, students need long-term memory of the information because it is likely to be a building block for later learning. It's more efficient to learn it well initially and save time by avoiding having to relearn it in the future. For information to last in memory, students need to use it and think about it more deeply. Help them think about ways to store or record the material to be remembered and ways to retrieve or recall what they have stored as well. Writing summaries fosters comprehension and can aid both storage and retrieval.

You can demonstrate a variety of examples of effective memorization. For example, what happens when you have to go somewhere for the first time? Usually at the beginning you have to get directions and follow them carefully so you don't get lost. If you go there often, eventually you can get there automatically without even having to think about where you are going. You can go on "automatic pilot." You have had so much practice that memory of the location and how to get there is well-ingrained in your mind. It has become internalized, second nature, and is a part of you.

That is what is meant by automaticity or "overlearning." Automaticity is another principle for improving memory. There are some concepts or skills that are so basic that learners need to be able to use them automatically. For example, what would it be like to read a book if every time you read you had to try to remember what all the letters and words stood for? This principle explains why ESL students often must spend much more time reading their texts than students for whom English is their native language. Multiplication tables are an example of a math content that needs to be on "automatic pilot" because these math facts are so fundamental. Extensive and varied practice can help students learn information or skills to the point of automaticity. Automaticity aids performance, especially on complex problems or tasks, because the more knowledge and skills that are on "automatic pilot," the more mental energy can be devoted to other aspects of a problem or task. How could you help

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students get the practice they need so they can put important concepts and/or skills on "automatic pilot"?

One of the most important concepts is that effective memory often depends on **planning** to remember **early** in the studying process. It's often too hard to retrieve information when it's needed if a memory cue or technique wasn't part of the initial learning process. Teach students to think about and develop strategies for how they are going to store and recall information to be learned while they are studying it. For example, to remember some major chords in music, use the strategy of thinking about the first note in the chord as starting with the thumb, like C for a C chord, then adding every other finger and note, that is three and five, in this case E and G for the C chord.

Graphic organizers, such as Figure 6.1, can be excellent tools for integrating learning, enhancing understanding, and promoting long-term memory. Deciding what to include in graphic representations and how to organize them as

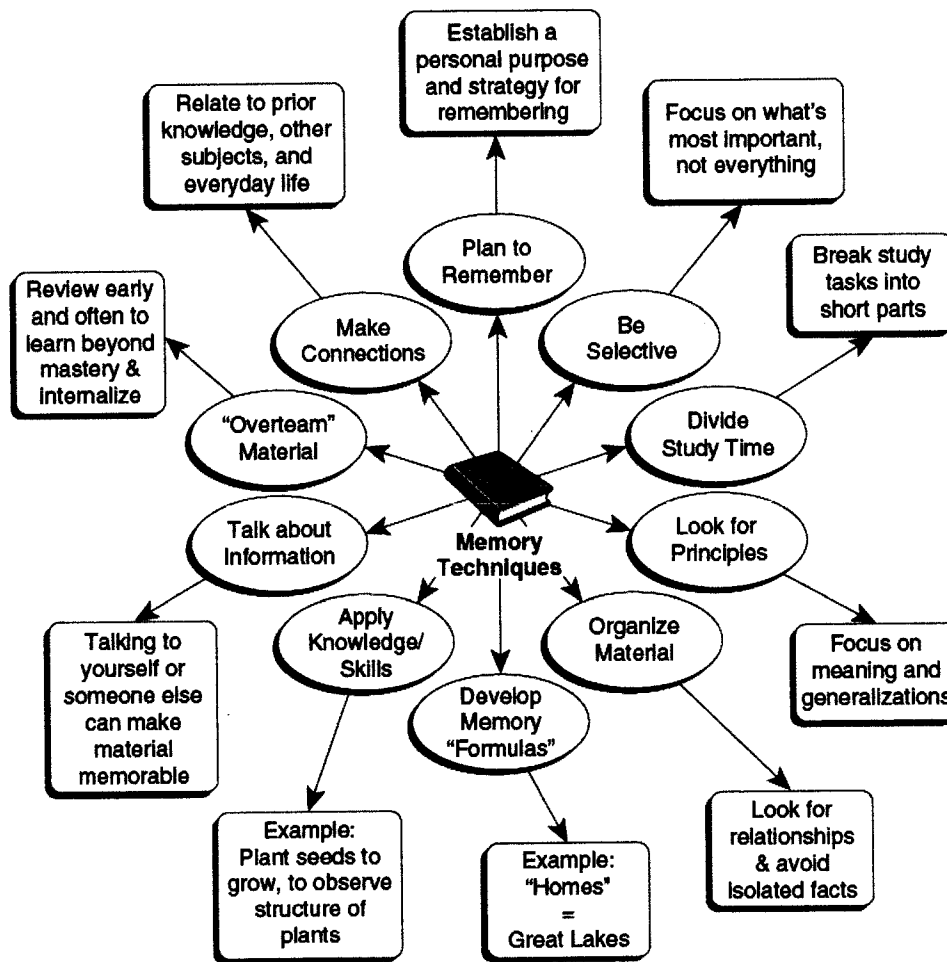


FIGURE 6.1 Memory Techniques

well as actually drawing them helps students store important information. Graphic organizers are effective tools for note taking, reviewing, self-testing, and remembering. While taking a test, mentally picturing the completed graphic organizers can help students to recall important ideas and the relationships between them. See Chapter 7 on assessment and Chapter 9 on reflective and critical reading for further discussions of graphic organizers.

Encourage students to experiment with a variety of memory strategies in all of their subjects. They shouldn't assume that the same memory technique is appropriate for all subjects or for all tasks within the same subject. The basic rule, however, is that whenever possible, emphasize memory with understanding rather than rote memorization. Memory techniques, such as summaries, that emphasize main ideas and meaningful relationships between units of information are generally superior to techniques that emphasize arbitrary relationships or fragmented information.

Understanding information has a direct relationship to memory. The more students understand about the information they are expected to know, the less of a burden there is on their memory. If students understand a concept, they can reconstruct it more easily and do not have to depend on rote memorization. Emphasize meaningfulness and connections when students are learning.

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## ✦ Experts Versus Novices

Be flexible about accepting how your students initially organize their knowledge. Research shows that the superior knowledge of experts is not only in the quantity of information, but also in the organization of that information. Consequently, you and your students may deal with exactly the same information in substantially different ways. Organization of information improves over time as the learner gains more experience and knowledge. For example, once individual pieces of music are learned, they may be grouped into categories such as classical, rock, or jazz. Further familiarization may bring grouping into subcategories such as bebop, boogie woogie, swing, ragtime, Dixieland, and improvisational jazz.

You are a subject area expert whereas your students are subject area novices. Communicate clearly the ways you think about the organization of the material in a subject. When you make connections within and between topics, those connections may be even more important than the individual topics because they reveal important relationships and show how a subject is organized.

The situation may be compared to two people looking at a hidden-3D picture. Experts see a deep underlying structure that creates a new and three-dimensional picture with the objectively same information. They know how to look at and organize the information. Novices just see the two-dimensional images immediately apparent on the surface; there is simpler organization and fewer connections. If you teach students how subject matter is organized by experts, then students can use this knowledge when taking notes, reviewing notes or a text, and preparing for a test. Three major differences between experts and novices are shown in Table 6.2.

**TABLE 6.2 Differences Between Expert and Novice Thinkers**

Experts	Novices
Construct a richly cross-referenced, hierarchical knowledge base.	Construct a poorly cross-referenced incomplete, amorphous knowledge base.
Focus on deep structures.	Focus on surface features.
Strategize before solving a problem.	Jump into solving a problem without strategizing

### ✧ Self-Directed, Reflective Learners

A major goal of teaching is to create students who no longer need your help to learn. This purpose can be described as creating a self-directed, self-regulating, or independent life-long learner, who has the following seven characteristics:

1. **Self-motivates, self-confident.** Self-motivation means the student is motivated to learn for learning's own sake. Self-confidence means the student feels that she or he can succeed. This includes feeling that one is the master of one's own educational destiny, knowing that individual efforts and strategies can affect academic performance and outcomes. (See the Self-Perception Continuum in Chapter 4 on emotions.)

2. **Plans work; knows when, why, and how to use knowledge and skills.** Self-directed learners plan their work on academic tasks, such as homework, papers, and studying for tests. Such planning includes knowing what material is to be learned and what knowledge and skills are needed for succeeding with particular material or tasks. Knowing when, why, and how to use what has been learned is vital for applying and transferring already learned knowledge. However, many teachers just teach "what" or factual information. What do you typically teach your students?

A. **Knowing WHAT:** Knowledge of facts, definitions, concepts, in a subject area. Declarative information is elicited by a "What" question. Each of the following questions seeks some declarative knowledge:

- What is meant by a symbiotic relationship?
- What is the meaning of the small 2 to the upper right of  $x$  in  $x^2$ ?
- What is clarifying?

B. **Knowing WHEN and WHY:** Knowledge regarding the situation in which and/or reasons why the student should apply some information or skill. Such contextual or conditional information is often sought by a "When" or "Why" question. This type of knowledge lets students identify conditions and situations in which it is appropriate to use specific information and skills. Each of the following questions seeks some contextual information:

- Why is the economy of Poland more volatile than that of Finland?
- Why is Herbert Hoover's presidency blamed for the Depression?
- When do you clarify?
- When do you use the quadratic equation?



C. Knowing HOW: Knowledge of how to apply information or skills students have learned. This includes methods, procedures, and techniques. A "How" question often activates procedural information. Each of the following questions seeks some procedural information:

- How is carbonic acid stored in tropical climates?
- How is the equation  $x^2 + 5x + 6 = 0$  solved?
- How do you clarify?

Successful students think about these three types of knowledge differently. Successful teachers understand that factual and procedural knowledge are not enough. Students also need to know when and why to use their knowledge and skills. For example, even if Denny knew all the formulas that were going to be covered on the test (factual knowledge) and how to apply them (procedural knowledge), he could fail the test if he didn't know which formulas to use with which types of problems (contextual/conditional knowledge).

3. Monitors work in progress: comprehension, approach, and memory. Student self-checks comprehension, reflecting on whether and how well he or she really understands the material or a task, and if clarification is needed. While working, the student checks up on whether/how well an approach or strategy is working and decides whether to stay on course or change. The student assesses whether there is information already stored in memory that should be retrieved for a task, or if there is new and useful/important information that should be put into memory for future reference or use.

4. Controls self-messages and persists. Self-directed learners maintain awareness of and control self-messages to eliminate negative thoughts and feelings, which otherwise can undermine effective performance. Such learners persist even when faced with difficult, boring, or tedious tasks. (See Chapter 4 on emotional aspects of thinking and learning.)

5. Evaluates work, using internal and external feedback to improve performance. Self-directed learners evaluate schoolwork by looking not only at grades received, but also at your comments. Self-directed learners seek evaluations of their performance from external sources such as you, other teachers, peers, and themselves. In addition, they examine wrong answers and use them as learning opportunities by identifying error patterns and using error analyses to develop an action plan for transforming mistakes into future successes.

The worst situation occurs when someone is wrong, makes a mistake, or fails, but does not learn from the experience. In such cases, the failure is likely to be repeated! Self-correction is an essential part of self-directed learning, and it is an important component of both monitoring and evaluating performance. See Chapter 7 on assessment for details on error analysis.

6. Self-rewards. Self-directed learners don't need the approval of their teachers, peers, or parents. Their rewards come from within, such as the personal satisfaction of achieving their own goals, and can include treating themselves to something special for a job well done. See the chapter on emotions for a detailed discussion of motivation.

7. Transfers knowledge and skills. This includes application of knowledge and skills learned to other subjects, other situations in the same subject, and to everyday life. Being able to recognize similarities or make connections can help the learner know it's appropriate to use or adapt their existing skills or knowledge to new situations. (See Chapter 2, Managing Teaching, for details on teaching for transfer.)

## Levels of Thinking Skills

Many students experience academic difficulty because they constantly focus on retaining subject matter content without first learning the intellectual skills needed to support that effort. In order for students to function intelligently, teaching needs to develop both low- and high-level cognitive skills as well as positive emotions (attitudes and motivation).

Lower-level cognitive "worker" skills perform the intellectual tasks decided on by higher-level "boss" (management) skills. Examples of lower-level skills include registering information (encoding), deciphering meaning (decoding), inferring, comparing, and combining. Higher-level cognitive skills include reflective and critical thinking skills needed for executive management processes such as planning, monitoring, and evaluating. Higher-level cognition involves "thinking about thinking," such as deciding how to approach a task. Research shows that higher-level cognitive skills involving reflection and critical thinking often need to be taught for the following reasons:

1. Teaching specific strategies, like the order in which to perform a particular task, will not give students the skills they need in the long run. Students must learn general principles such as planning, and how to apply them over a wide variety of tasks and domains.
2. Both the long-term benefits of training in lower-level cognitive skills and the ability to apply lower-level cognitive skills to new tasks appear to depend, at least in part, on training at the higher cognitive level as well as the lower cognitive level. Both levels are needed for effective cognitive performance.
3. Generally students have a history of blindly following instructions. They have not acquired the habit of questioning themselves to lead to effective performance on intellectual tasks.
4. Students with the greatest reflective skill deficiencies seem to have no idea what they're doing when performing a task.
5. Students often have problems of
  - A. Determining the difficulty of a task.
  - B. Monitoring their comprehension effectively (they don't recognize when they don't fully understand something, such as task directions, information in textbooks).
  - C. Planning ahead (what they need to do, and how long each part should take).
  - D. Monitoring the success of their performance or determining when they have studied enough to master the material to be learned.
  - E. Using all the relevant information.

- F. Using a systematic, step-by-step approach.
  - G. Jumping to conclusions.
  - H. Using inadequate or incorrect representations.
6. These reflective and critical thinking skills and knowledge, although important, often are not taught in school.

For more information on levels of thinking skills, see the categories of low-intermediate- and higher-level questions as well as Bloom's taxonomy in Chapter 8 on Teaching Strategies.

## Strategies for Developing Self-Directed, Reflective Learners

In addition to teaching your subject matter, teach your students to systematically reflect on how they think, learn, remember, and perform academic tasks before, during, and after their work. Students can manage their own learning through reflection promoting self-awareness and self-control. This reflection should emphasize planning, monitoring, and evaluating.

- **Plan.** Before beginning, think about what is to be done, when to do each step, decide how it is to be done, consider alternative strategies, and determine why a particular way needs to be chosen. Examples: What steps should I take to write this term paper? What should I do first? What should I wait until later to do? Where can I find the information I need to answer this question? How am I supposed to conduct this experiment?
- **Monitor.** While working, check up on progress to determine how well you understand what you're doing, whether what you're doing is really leading you where you want to go, and whether you're forgetting anything important. Examples: Am I sure I understand what the teacher expects for this question? Is my answer heading in the right direction? Have I included all the major causes of the war in my answer? Am I leaving out anything important? What do I remember from my class notes that could help me solve this problem?
- **Evaluate.** After task performance, judge what you have done and how you did it. Determine what could have been done better and what you can do to improve performance next time. Develop a specific plan of action to improve performance. Examples: How well did I do on the test? How could I have done better? Did I make any careless mistakes? I'm going to remember to study my class notes while I'm reviewing the textbook to see where they overlap. That will help me have a better idea about what will be covered on the test. Next time I'll check more carefully before turning in my paper. The "I DREAM of A" models in Chapters 10 and 12 on mathematics and English, respectively, are subject-specific applications of these ideas. These models emphasize use of two reflection strategies: self-questioning and thinking aloud.

Another strategy for helping your students become self-directed learners is for you to be a role model and demonstrate examples of self-directed, reflective learning. Talk out loud to yourself, let students see and hear you plan,

monitor, and evaluate your work and how you would approach tasks like theirs. It's a good idea to intentionally make mistakes so students can observe how you discover them and self-correct.

Questioning and self-questioning strategies are effective ways of promoting self-directed learners. Discuss and illustrate use of reflective and critical thinking in school and everyday life situations. Ask students questions such as "How would you plan, monitor, and evaluate a surprise party?" "How do you prepare for a test?" Model self-questioning for them. Have students generate and use self-questions. Habitual self-questioning may be the best way of improving reflective and critical thinking skills.

Research on self-questioning shows that questions created by the student are much more effective than questions given to the student by a teacher. It is preferable to have each student generate his/her own self-questions or to do this with a partner or in a small group. To stimulate and guide student thinking, provide sample questions for students to use as models. Self-questions such as "Have I left out anything important?" can help a student self-direct in identifying omission of important points or examples. Listen to students performing tasks while using their self-questions and give them feedback on their questions and answers. Encourage them to keep a readily accessible list of their own self-questions to use or adapt for the particular situation. It is important to regularly have students adapt their self-questions to the needs of the specific subject and specific situation, and use them to guide their performance before, during, and after a task. Self-questioning can have the following benefits:

- Improved awareness and control over thinking and thereby improved performance;
- Improved long-term retention of knowledge and skills;
- Improved ability to use knowledge and skills;
- Improved attitudes and motivation.

Practice is necessary but not sufficient. Make sure students understand when, why, and how to use strategies like self-questioning. Help them recognize contexts for their use and develop criteria for evaluating their effectiveness.

Finally, and most importantly, repeatedly emphasize, and demonstrate through your communications and actions, that students are responsible for and can control their own educational outcomes. Student performance should not be blamed on a teacher. Students earn grades, you don't "give" grades to them.

Help your students become effective thinkers and learners by working with them to develop important skills that underlie their intellectual achievement. Another of these, time management, can maximize their engagement with academic work outside of class.

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## ✦ Time Management

How do you budget your time when preparing and implementing a lesson? Do you consider yourself a good time manager? Why or why not? What are your strengths and weaknesses as a time manager? One of students' most common

complaints is that they do not have enough time for all the reading, studying, and other academic works they are assigned. Even excellent students tend to have trouble managing their time.

Too often students cram at the last minute on material they should have been learning over an extended period of time. Many students have competing social, extracurricular, and/or family responsibilities to balance with their academic work. Sometimes priorities get confused because short-term needs conflict with long-term goals. Research suggests the following four major factors may affect students' time management:

1. Setting goals and priorities—Ending conflicts between short-term and long-term goals;
2. Mechanics, including planning and scheduling;
3. Perceived control of time;
4. A general preference for organizing one's workspace and approach to projects.

Of these four factors, perceived control is the best predictor of grade point average. Controlling how time is spent is also related to measures of stress and self-evaluations of performance. Students who perceive themselves as having control over time also reported greater satisfaction with their job and life roles.

### Time Management Tips

Determine whether your students are adequately managing their time and help them develop and implement good time management strategies. Have them reflect on whether they spend time in a way that is consistent with their priorities. The following recommendations can help your students improve their time management skills.

1. Set short-term goals and establish priorities. Sometimes students need a teacher's help clarifying their short- and long-term goals. An example of a short-term goal is to read a history chapter a particular week. An example of a long-term goal is to get into a good college. An example of a low-priority activity may be waiting in line to see a new movie. An example of a high-priority activity is preparing for an important test. Do students have conflicting priorities? If so, how do they handle them?
2. Keep a 24-hour time log of daily activities for at least a week. Logs should be kept from waking up to going to bed so students can figure out exactly how they are using their time. This provides a baseline for future time management plans. It will also help determine whether there is down time that could be used more effectively, such as waiting in line at the grocery store, riding the bus or subway, or doing laundry.
3. Use the log to compare how they spend their time with their stated goals and priorities. How much time is spent on low-priority versus high-priority goals? Is too much time being spent on low-priority goals? Is enough being spent on high-priority goals?

**TABLE 6.3 Time Management Guidelines**

<b>Time Management Scheduling Guidelines</b>	<b>Explanations</b>
Things usually take more time than we think.	Research says to accurately predict how long a task is likely to take, estimate the time, then multiply by 3!
Fit the individual.	Most people are more alert and work more efficiently during one part of the day or night than another. Schedule activities accordingly.
Be specific.	What activities will be done? How much time is allotted for each?
Economize time.	Organize the schedule to create the most available time possible. Use down times.
Be flexible.	Modify schedules as needed. Expect the unexpected, such as emergencies and unanticipated demands.
Schedule fun and relaxation.	A happy, healthy person is generally a more efficient worker.

4. Develop a time management plan (schedule) that is more consistent with their own goals and priorities. Help students identify the strengths and weaknesses of their current schedule. Try to identify poor organizational habits, such as repeated trips from their study area to the kitchen, when better planning could lead to fewer trips and more available time. Determine whether interruptions or procrastination are factors in how time is being managed, and if so, identify strategies that can overcome these problems. Pay particular attention to time allocated for high-priority tasks, like keeping up with schoolwork so students can achieve their long-term career goals. The guidelines in Table 6.3 can aid scheduling.

5. Regularly monitor how time is spent in relationship to priorities. This should be an ongoing process. Check up on whether/how the time management plan is being followed and how it is working. By evaluating time logs, you and your students can examine whether and how the schedule is working. Students can benefit from finding more constructive ways to use "dead" or "down time." Even when traveling to and from school or standing in line at a grocery store, students can mentally review important concepts. Consider how your students feel about their new schedules. If they don't like the schedules, they probably won't be motivated to follow them.

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Follow up this suggested list of activities with appropriate activities or discussions. Encourage discussions among students about their creative ideas for making the most of their time. Brainstorming, reviewing, reflecting on, and criticizing schedules and other time management strategies can help students make changes as needed.

Table 6.4 is an example of a time management plan for a high school student.

**TABLE 6.4 Sample Time Management Plan for Non-School Hours**

Day of Week	Time of Day	Activity*	Results and Changes
Monday	3–5:30	music lesson	
Tuesday and Thursday	3–5:30	sports/hobbies	
Wednesday and Friday	3–5:30	flexible, depending on goals and priorities**	
Monday–Friday	6:00–7:00	dinner/family, chores	
Saturday	9 AM–noon	schoolwork (homework, projects, studying for tests)	
	12:30–4	sports/hobbies	
	5:00–7:00	dinner/family, chores	
Friday and Saturday	7:00–midnight	friends/date	
Sunday	9 AM–noon	spiritual/family chores	
	noon–6 PM	flexible	
Sunday–Thursday	7:00–9:00 PM	schoolwork	
Sunday–Thursday	9:00–10:30 PM	phone, TV, and computer	
Sunday–Thursday	10:30 PM–6:30 AM	sleep	
Friday and Saturday	midnight–9:00 AM	sleep	

**\*Economy Strategies:**

1. Bring homework for when traveling and for down time during activities.
2. Budget time based on needs, goals, and priorities.
3. Make sure to get enough sleep to be alert when needed.

**\*\*Goals and Priorities:**

1. Get into a good college.
2. Develop a good social life and hobbies.
3. Continue to have a good family life.
4. Stay healthy.