The start of the new semester is a hopeful time. The move from high school to college can be both exciting and anxiety provoking. As freshmen enter into this new phase in their lives, they face an academically challenging educational environment because of the dramatic shift in expectations between high school teachers and college professors. For those students new to the collegiate environment, the material in this section is crucial as the information and strategies will help you start the academic transformation process with confidence. Those who are experienced college students wanting to improve their academic performance should read this material carefully and determine which strategies will help you in becoming an even better student.

We have purposely designed this section of the textbook to share several strategies and tools that our most successful students use to organize their academic lives at the beginning of each semester. These include how to effectively use course syllabi, time planners, and virtual learning environments to create comprehensive notebooks for each course.

You will have many tests this term. Because we cannot predict how quickly those tests will come, we have put extensive material on test preparation and test-taking strategies in this introductory material. Please use this information before you study for your first test. The
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The chapter ends with a reflective view of your commitment to this enterprise—becoming a successful student.

COURSE SYLLABUS

The dominant organizational tool of a college course—the academic syllabus—is an essential survival tool. It used to be just a simple list of topics for the course, but now it can include

- course title and number,
- instructor’s name and contact information,
- office hours,
- instructor’s philosophy of teaching,
- purpose of the course,
- course goals or objectives,
- textbooks, required materials, and learning resources,
- Web-based course components,
- required learning activities,
- course calendar or outline with exam and assignment due dates,
- grading criteria,
- attendance policy, and
- disability statement.

Once professors have given you this information, they expect you to keep it and refer to it often. Professors may not mention key dates listed on the syllabus until immediately before an assignment is due or a test is to be given. However, they should give you, in writing, all the departmental and school policies, as well as their own policies about attendance and grading. It is really a contract; it tells you the professor’s expectations of your work and how you will earn your grade. Many professors never pass out a syllabus. They just put it on the course website and expect you to print a copy.

The collegiate environment prepares you for professional life by the complexity of the academic demands of numerous courses. You are responsible for determining the priorities and managing the conflicting demands of exams, papers, and projects. Completing the following Syllabi Matrix is the first strategy you can use to gain an overview of your academic demands this term.
### FIGURE E.1 Syllabi Matrix

<table>
<thead>
<tr>
<th>Course Title &amp; Number</th>
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TIME MANAGEMENT

Planning and managing time are the primary challenges for college students. It seems, at first glance, that you have much more free time in college than in high school. However, this is deceptive because you will have much more material than you did in high school to read, study, write outside of class. Unlike high school, where your academic time is planned, in college you are the planner. We strongly recommend that you create a system that will incorporate all your obligations—academic, work, social, and personal—in one place. This second strategy is a good stress buster as it can prevent nasty surprises down the road.

Here are some suggestions for using your planner:

• Enter important academic due dates (and place a reminder several days ahead).
• List your committed times (classes, work, meals, commuting, and so on).
• Identify your best times to study. Do you read better during the early evening hours? Are you a better writer during the early morning hours? Complete your academic tasks when you are most alert and able to concentrate.
• Realistically determine how much study time you need. Some students use the rule of two hours of study time for every hour of class time. We do not believe there is any one formula that ensures success. You must decide how much time you need to stay engaged in learning. If you are a beginning college student, we recommend you add 50 percent to your estimate. Remember that studying is a behavior—you will be thinking, reading, writing, creating, practicing, and teaching. Be as specific as you can on your planner about the behavior you intend to complete.
• Mark the hours you are at work, including drive time.
• List social or family plans, including dates, parties, and meetings.
• If you have regularly scheduled exercise and/or mediation time, enter it on the planner.
• Plan for some downtime; such personal time is necessary for rest and refreshment.
• Make sure you have some time each day that is not allocated. This time is what you will need to handle the unexpected crises of work, children, car repairs, and so forth.
• Keep your planner with you. It will help keep you on track.
• If you already have a calendar program on your computer, use it. If not, try one of the online calendar tools such as Google™ calendar as these tools are available to you anywhere you have Internet access.
FIGURE E.2  Weekly Planner

<table>
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<th>Sunday</th>
<th>Monday</th>
<th>Tuesday</th>
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</table>
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COMPREHENSIVE NOTEBOOK

The third strategy employed by several of our successful students is to create a comprehensive notebook—a notebook that holds everything you need for one class and its lab if there is one. You can use either loose-leaf notebooks or spiral notebooks for each course. Put the syllabus, class notes, handouts, printouts from the course website, assignments, and test review questions in this one place. In either case, put a zippered bag in your backpack with a stapler, pens, highlighters, blue books, answer sheets, and so on.

If you use spiral notebooks, just staple handouts next to the lecture notes. Put the syllabus in the front pocket. The same principle applies to loose-leaf notebooks. Different color notebooks, as well as other color-coding tools, will help keep you organized and less stressed.

Setting up your notebooks can almost be fun; it is the first of the semester and good intentions usually rule. It is the maintenance of your system that has the power to improve your academic performance. You are less likely to make costly mistakes, and your study efforts will be more efficient.

For learning to occur, information must be organized and meaningful. As you attempt to master college-level material, you may find that your individual preferences for learning do not always match your instructor’s style of teaching. Your individual preference for learning is your own natural ability to organize and make meaning of the material. You may learn best by seeing information and can easily recall printed information in the form of words, phrases, or sentences. Or you might be more inclined to recall information presented in pictures, charts, or diagrams. Perhaps you learn best by listening, whereby information that you hear becomes easily remembered. Maybe you learn best by doing, as you create and manipulate objects. For many of us, using a combination of these techniques is extremely helpful.

Constructing an organized, comprehensive notebook will enhance your ability to learn college material on your terms. The notebook is more than simply a place to record notes; you can integrate note-taking, visual aids, test preparation, and reviewing systems into the notebook. It is also a place to reflect on the course content through journaling and guided questions. Think of the possibilities as you adopt ways to organize, associate, expand, apply, analyze, visualize, synthesize, and evaluate course content. Creating maps, networks, hierarchies, comparison charts, time lines, sample test questions, and many other learning techniques will become second nature to you. As we introduce you to new learning strategies, we want you to experiment and explore new ways of learning that enhance your individual preferences through the integrative notebook.

Your notebook should allow for flexibility so you can find, add, and move materials easily. To do this, organization is paramount. If you decide to use a
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loose-leaf notebook, we suggest that you begin by dividing it (using labeled dividers) into sections.

Exercise E.1

Comprehensive Notebook

Set up a comprehensive notebook for one or more of your courses. You will need to purchase one or more loose-leaf notebooks, loose-leaf paper, and section dividers. Divide the notebook(s) into the following categories and begin to place items in the notebook(s).

- Course syllabus
- Semester course calendar or outline
- Lecture notes
- Handouts
- Textbook notes
- Supplemental resources from the library or the Internet
- Assignments and/or exercises
- Review materials
- Test preparations and/or sample test questions

This exercise will assist you in organizing class material and facilitate your ability to review.

One important rule: **NEVER LEND YOUR NOTEBOOK.** If someone asks to borrow or copy your notes, walk with them to a copy machine and let them copy.

One final organizational tip, no matter how the rest of your room looks: make sure your desk is neat. It is only for study. Set it up so that you have room for your laptop, printer, and all your supplies. Buy a good study light too. Any bulletin boards above or next to your desk are just for academics, such as reminders about assignments and study sessions. Keep pictures and other distractions around your work area to a minimum.

VIRTUAL LEARNING ENVIRONMENTS

Most colleges and universities have installed virtual learning environments and require professors to use them. In common language, these are Internet-based academic course management systems. Almost certainly, you will
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need easy and rapid access to a computer and the Internet on a daily basis to check postings for up-to-date information and to find all of the detailed information you need to record on your Syllabi Matrix and Academic Planner. Besides providing the syllabus, administrative information (including how to get help), additional learning resources, online self-assessment and testing, threaded discussions and chat rooms, professors will often communicate with your class directly through electronic postings. Typical postings include announcements about upcoming guest speakers, field trip reminders, and last minute class cancellations; extra credit assignments or opportunities; and your grades on quizzes, papers, projects, and major exams.

As soon as you are registered and the semester has begun, you will have access to the virtual learning environment for your courses. Make sure you know how to access and use the specific system your institution has selected, and call or go by the student computer help desk when you have questions or problems.

TEST PREPARATION STRATEGIES

How do I choose and organize the content material for a test?

Start early enough to really do the job. Three to four days before a test, write a list of all the content to be covered and the expected level of learning you will need to perform it. Do you have all the lecture notes? If not, get copies of any lectures you missed. Get all the handouts or material from the instructor’s website. The most important question to ask is “Have I done the initial learning of this material—read the required materials, gone to class, used other required sources?” If the answer is no, then get started!

The initial learning of any material takes time, especially if it is procedural knowledge, and such learning is most efficient when anxiety is low. However, relearning material that is already familiar but not readily retrievable is usually much faster, and even moderate anxiety does not interfere. The marker for many experienced students is 24 hours before the test. By that marker, most students feel some anxiety, but if what they have to do is simply relearn the material and practice storing/retrieving to prepare for the test, then they can usually do that efficiently.

How do I select the most important items to study?

List all the content for the test, then look for all the clues about what will actually be on the test. What has the instructor or the teaching assistant emphasized? What will be the structure of the test—objective, short answer, essay? What is on any handouts or the instructor’s website? Does the study manual or CD of your text have practice questions? What does the instructor say on
the last day before the test? What is the focus of the review session (be sure to go!)? Talk to students who have had this course and instructor before. If you have exams from earlier in the term, use them to get an idea of what type of items your instructor tends to choose.

**There is so much information! How can I do this?**

Hold on now—don’t let the amount of information intimidate you! You have to get in front of it and organize it. Organizing helps us chunk the material so that we can remember it. Because you have to do this in as many as four or five courses, organization is your best weapon.

**Exercise E.2**

**Using a Test Prep**

The purpose of this exercise is to help you differentiate between preparing to study and actually studying for an upcoming test as well as to create an organized study plan. Completing this exercise will give you an opportunity to apply many of the techniques discussed previously while you prepare for your test.

1. Select material that you are currently preparing to study for a major test.
2. Test date: ____________________
3. Complete the following chart:

<table>
<thead>
<tr>
<th>Specific material test will cover</th>
<th>Uncompleted Tasks</th>
<th>Completed Tasks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test material</td>
<td>Time needed to complete</td>
<td>Test material</td>
</tr>
<tr>
<td>Textbook chapters:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Outside readings:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Class notes:</td>
<td></td>
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<tr>
<td>Other resources:</td>
<td></td>
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</tr>
</tbody>
</table>

4. Next to each of the following types of questions write the number of them that will be on the test:

   ____ True/False  ____ Fill-in-the-blank
   ____ Multiple choice  ____ Short answer
   ____ Matching  ____ Essay
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5. What is the time limit for completing the test? ________

6. Identify and list all major topics covered on the test:

____________________________________
____________________________________
____________________________________
____________________________________
____________________________________

7. Select one or more of the following simple techniques to practice memory and retrieval of the test material (see Chapter 6):
   a. Create 10–20 note cards using at least three of the following note card formats:
      Vocabulary          Example
      Identification      Concept
      Formula             Practice problem
      Simple diagram      Comparison/contrast
   b. Make time lines and/or stories to associate dates, names, events, and so on.
   c. Create mnemonics using at least two of the following types:
      Jingles              Key words
      Rhymes               Created words
      Acronyms             Created sentences

8. Select one or more of the following activities to help you learn the test material at a deeper level (see Chapter 6):
   a. Summarization—Create a one- to two-page summary sheet of information from the lecture or readings.
   b. Visual or graphic organizers—Create two organizers using more than one of the following formats:
      Matrix                Spider concept map
      Hierarchy             Network
      Bubble concept map
9. Predicted test questions—Create questions and answers based on the type of test you expect:

- 10–15 Multiple choice and True/False
- Matching and fill-in-the-blank if appropriate
- 5–7 Short answer
- 3–5 Essay

What do I do when I have two tests in one day?

If these are declarative knowledge courses, then use color coding and different learning techniques so you can keep the content distinctly different in your mind. Study the material for the second test first; then study the material for the first test before you go to sleep. The next morning, review the material for the first test and take it. Then review the material for the second test and take it.

If one test is declarative knowledge and the other procedural knowledge, practice the procedural knowledge first until you reach mastery level. Then study for the declarative knowledge course. The night before the tests, practice the procedures again. End your study that night with the material for the first test.

If both tests are procedural, start very early to master the procedures you will need to perform on the test. The night before the test, practice for one test, then take a 30-minute break, and then practice for the second test.

How do I stay awake when I study?

Use active study techniques—with friends in a study group, reciting aloud, spacing study with some quick exercise breaks or some fast household chores. Stand up and walk around as you rehearse. Music may help some of you, but for others it is a distraction. Study in the library or another place without the distractions of telephones, family, friends, and so forth. During finals, you might put the television away in the closet. Study before your family or roommates wake up or after they go to bed. Get some sleep each night (all-nighters tend to destroy test performance). Use healthy snacks, if possible. Fresh air, opening a window or walking outside, can help.

Do I need to study differently for objective, short-answer, and essay tests?

Absolutely. Objective tests require much more specific recognition and recall, so using various types of note cards and graphic organizers can help.
Collegiate-level multiple-choice questions usually require you to select the best answer (many of the alternatives may be correct) or they may require you to function at the application level, such as mathematics, economics, and accounting. Try to think like your teacher—what kind of questions would you write for this test?

Short-answer tests often require that you demonstrate that you understand a concept or an important fact. Sheer memory is not enough; you have to be able to explain the material. Practice by explaining concepts, identifications, or definitions to yourself, your dog, anyone who will listen.

Essay tests require a very different type of preparation. To prepare well, you will need to study at the analysis level. Once you have learned the major concepts, write practice questions comparing/contrasting two or more of the concepts or tracing the development of an idea or historical event or analyzing the cause/effect relationships between several topics or considering the significance of certain occurrences. After you create some study questions, practice writing a thesis statement and a list of major points that you would want to make in your answer. Thinking about the material at this level of analysis is a powerful preparation strategy for essay tests.

TEST-TAKING STRATEGIES

In this section we provide some of our favorite test-taking strategies.

I need some help on taking a test. What do you suggest?

Learning how to play the game and becoming an effective collegiate test taker are major goals of your first year in school. The first rule is simple: Nothing helps more than really knowing the material. If you learn the content and practice it at the appropriate level of learning, then the rest is just technique and common sense.

Here are some strategies for making the most of your test-taking experience:

BEFORE THE TEST
- Make sure you have all the supplies you need, as well as a watch.
- Arrive 5–10 minutes early.
- Do not hang out with other students who tend to catastrophize or psych each other out about what might be on the test.
- Sit away from your friends if they make you nervous or tend to finish earlier than you.
- Use positive self-talk and breathe deeply to relax.
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AT THE BEGINNING OF THE TEST

- Write down formulas, theorems, or processes you will need.
- Look over the entire test, noting how much each part of the test is worth. Mentally decide which parts you want to answer first and how much time you will allocate to each section. (You might want to start with the section that seems easiest to you.)
- Read and underline key words in the test directions. Be sure to note if the directions say to answer only some but not all of the questions (common on essay tests).

DURING THE TEST

- If you begin to feel nervous or blank out on a question, stop, take a deep breath, and say to yourself, *I prepared for this test, and I can answer these questions. I will move on and come back to this question later.* Take another deep breath and read the next question, paying close attention to monitor your self-talk as you progress through the test.

OBJECTIVE QUESTIONS (MULTIPLE CHOICE, TRUE/FALSE, MATCHING)

- Read every question carefully. On multiple-choice questions, try to answer the question before you look at the options. If that does not work, read each option and cross out those that are incorrect, ones that are too similar to distinguish between (unless there is an option such as “a and c” or “all of the above”), and those that are grammatically incorrect. Also examine options that are complete opposites of all the others; they are often correct.
- When you are confused by a multiple-choice question, read the stem and each option as a true/false question. This allows you to focus on each piece of information separately before trying to look at the question and options as a whole.
- Attempt to answer each question, but mark any that you are unsure of so you can return to them before the end of the test. Often you will find clues to the answer later on in the test.
- On true/false questions, look for absolute terms such as *all, always, never, none.* Such words are rarely found in correct answers, except in science courses such as physics and chemistry. Questions containing words such as *usually, frequently, rarely,* and *seldom,* especially in social science courses, allow for exceptions and are more likely to be true.
- If you can think of an exception to any part of a true/false question, then it is false. Be careful not to make assumptions or read anything that is not explicitly stated into a question.
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- Beware of negatives because they change the meaning of the sentence. Circle the negative (*no, not, cannot, dis-, il-, im-, non-, un-*) and get the meaning of the statement without the negative. Then reread the statement with the negative. Remember that two negatives in one sentence cancel each other out.

- Determine the relationship between columns on matching questions and then start with the column with the longest list of items.

**SUBJECTIVE QUESTIONS (IDENTIFICATION, SHORT ANSWER, ESSAY)**

- Remember that identification questions require these specific elements: when, what or who, where, and significance (importance or impact).

- On a short-answer question, define or describe the term or concept, cite a source, and give an example.

- Because many essay questions are quite long and involve several imbedded questions, be sure to read the entire question and briefly outline your answer to each part.

- Determine whether the essay questions are really statements, not questions. If this is the case, turn the statement into a question, identify limiting or directional words (these include *analyze, compare, contrast, define, describe, diagram, discuss, enumerate, evaluate, explain, identify, illustrate, interpret, justify, list, outline, prove, state, summarize, support*), outline your answer, answer the question in the first paragraph, give examples and details in the body, and provide a *big-picture* conclusion.

**AT THE END OF THE TEST**

- Take the last 10 minutes of the test time to review your work.

- For any unanswered multiple-choice questions, look at the items you are still considering. Reread the question and choose the one that sounds as if it completes the stem the best (at least you have a 25 percent chance or better of getting it right).

- For any unanswered true/false questions, if the items contain unfamiliar terminology or facts, mark the statement false. If you are still unsure, pick true because it is harder to write a false statement that is not too obvious.

- Do not change answers unless you have remembered something or learned something from the test that contradicts the option you selected previously.

- Reread any essay questions and answers and correct any grammatical or logical errors. Check to see that you have included all the relevant information. If you run out of time, outline the rest of your response.
ANALYSIS OF PERFORMANCE

The purpose of a test is to see how much you know, not merely to achieve a grade. Making mistakes, or even failing a test, is human. Rather than ignoring mistakes, examine them and learn from them as you learn from mistakes on the job and in your relationships. Working through your mistakes will help you avoid repeating them again on another test—or outside school life. (Carter, Bishop, & Kravits, 2002, p. 338)

When a test is returned to you, examine it carefully to see where your strengths were (and celebrate your successes!). Then look at your errors—were they careless or content errors? Content errors occur when we misunderstand a concept or do not remember factual information. Perhaps you never learned the concept or information in the first place. When you receive a graded paper or project, read the comments carefully. If the comments are few or confusing, make an appointment with your instructor to discuss how you can improve your work.

Exercise E.3
Analysis of Preparation and Performance
You can learn to enhance your performance by analyzing and reflecting on the results of a recent test, paper, or project. This exercise is designed to assist you with that process.

Predictions
1. How difficult did you think this test, paper, or project was going to be?
2. What grade did you think you would receive before and after? Explain any difference.

Preparation
3. How much time did you spend?
4. What methods did you use?
5. How well did you learn?

Performance
6. How well did you follow directions?
7. How well did you read the questions or assignment?
8. How well did you manage your time?
9. What effect did stress (positive or negative, anger or anxiety or excitement) have on your performance?
EVALUATION
10. Were you surprised about your grade? Why or why not?
11. Why do you think you made that grade?
12. Do you wish to challenge any answer or grade? Do so respectfully in class, if appropriate, or schedule an appointment.

NEXT TIME
13. How will you prepare differently for your next performance?

COMMITMENT

Students who have a strong commitment to a college education and the acquisition of a degree are more likely to graduate than those students who do not (Astin, 1993; Tinto, 1987). When we really want something, we will try long and hard to make it happen. That effort is commitment, a powerful word that reflects a promise we make to an idea, a group, another person, or ourselves. The strength of our commitment rests on our determination to fulfill that promise. One of the most important tasks of childhood and adolescence is learning how to choose commitments and honor them. Most of us have had the experience of joining a group or activity and then wanting to quit halfway through. Do we quit? Or do we honor the promise we made to the other participants of the group? Usually, we begin to learn quickly that we need to choose carefully, even when what we are choosing is a friend or a romantic relationship. A hard life lesson is the realization that life does not just happen to us—we choose it. Choosing our commitments carefully and honoring them is a characteristic of successful students. Honoring our commitments supports good self-esteem and self-discipline.

Life without serious commitments can be a life filled with a sense of purposelessness. What makes the difference is whether we are thoughtfully searching for those commitments that form the foundation of a good life or whether we are simply wandering from one casual interest to another. Such a search permeates every facet of life as we look to those ideas, groups, and individuals to which we commit our beliefs and our actions. Although this discussion focuses on the academic commitments we have, it is noteworthy that college life (at whatever age) is usually a time of exploration of all categories of commitments—intellectual, spiritual, social, personal, occupational, physical. We may retain some of our commitments from earlier times, but even these are shaped by the crucible of college.
Personal and Institutional Commitments

There are two types of academic commitments: personal and institutional (Tinto, 1987). It is normal for you to desire a sense of belonging and loyalty to the institution where you study. You may be attending the same college as your parents or older siblings and your loyalty started years before you enroll. It is helpful to attend orientation programs and learn the history of the campus. In any case, expect the old ties to your former school to lessen as you become more invested in your new community. A strong commitment to the institution can help you persist and succeed in college.

In general, research on the retention of college students over the past 25 years indicates that both types of academic commitment increase the likelihood of academic success and graduation (Dochen, 1993). The institutional commitment seems to play a greater role in the initial years of college, whereas the personal commitment becomes much more important as students move deeply into their majors and begin to set specific career goals. Most institutions make serious efforts to attract and acclimate new students to the campus and its traditions. Commitment often begins with a student’s initial choice of the college if that choice has been carefully made.

Strategies for Assessing Our Commitments

Reflecting and journaling are the two most powerful tools that can help you understand your own level of commitment. What are your thoughts and feelings about the institution you attend? Are you proud to be a student there? Is it important that your degree come from this institution? Do you feel a sense of belonging—in other words, is this institution a good fit for you? Are you comfortable in your dealings with the faculty, the staff, and other students? Have you relinquished your bonds to your former school and transferred your loyalties to this one? These and other reflective questions can help you evaluate your sense of commitment to your institution.

Another set of reflective questions will focus your attention on your commitment to personal academic goals. How important is it to you to have a college degree and the resulting professional career? Have you made a clear choice of a major? What are your academic ambitions, including grade point average (GPA) and honor societies? Have you investigated graduate or professional programs? Have you completed internships or volunteered or worked part-time in the field?

Of course, commitments occur in other areas of our lives: spiritual, physical, social, family. Early in their college years, students often seriously commit their time and talent to social or family relationships, to religious ideals or organizations, to athletics, to work. At times such commitments
enhance our academic commitments, but it is easy to get unbalanced and allow other commitments to devour all of our time and attention. The balance of commitments is especially difficult for freshmen. The college years are a time during which we should learn how to develop, deepen, and balance our commitments. The first step is self-awareness, and that is achieved by persistent reflection, both in conversation with people we trust and in journal writing. Taking an inventory of what we really value, not what others tell us we should value, is sometimes painful. The key is to look at our behaviors. What do we do? Not what do we say we should do, but what do we do? How do we spend our time, our money? Do we say that academic achievement is important to us and then cut class several times a week? Do we say that we are committed to our friends and then gossip about them? Do we say that we value physical health and then avoid exercise and eat junk food? Do we say that we do not have serious problems and then get drunk three times a week or make ourselves vomit once or twice a day because we believe we ate too much?

A realistic inventory pushes us to consider what we really value and what we want as our life commitments. Any list of commitments should include the behaviors that would demonstrate our willingness to choose each commitment. The list should also reveal priorities: Which commitments are most important? Least important? One method is to deliberately create an intention statement. Many of the chapters in this book illuminate the techniques necessary to turn intention statements into specific goal statements into specific behaviors.

**Exercise E.4**

Are You Committed?

How strongly are you committed to college? Answering the following questions will help you clarify and reflect on your current experiences and commitment to college.

1. Your thoughts and feelings about the institution you attend:
   a. Are you proud to be a student there?
   b. Is it important that your degree come from this institution?
c. Do you feel a sense of belonging—in other words, is this institution a good fit for you?

d. Have you relinquished your bonds to your former school and transferred your loyalties to this one?

e. Are you comfortable in your dealings with the faculty, the staff, and other students?

2. Your goals for attending college:

a. What is your main goal for attending college?

b. Have you made a clear choice of a major or selected a program of study?

c. Is it important for you to have a college degree or to get certified in a particular program?

d. Will attending college result in a better job or change in career?

e. Have you investigated graduate or professional programs?

f. Have you completed any internships or volunteered or worked part-time in a field related to your academic goal?

g. What are your academic ambitions, including GPA and honor societies?

3. Support from family members:

a. Does your family support your desire to attend college?

b. If you live at home, do family members make it possible for you to study?

c. Do family members help you financially?

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The Last Word

WE WISH YOU THE BEST POSSIBLE SEMESTER as you become the successful student you wish to be. This text and your faculty are your guides for this adventure.

—De Sellers

Carol Dochen
Russ Hodges
The Road to Autonomous Learning

I don’t know where I’m going, but I’m making good time.

CHAPTER HIGHLIGHTS
- Introduction
- A Quality World
- Academic Transformation
- Becoming an Autonomous Learner

As twenty-first century citizens, we are experiencing an increasingly complex and challenging world. Each year millions of us choose higher education as a way to prepare ourselves for this ever-changing world. Yet many of us have conflicted emotions about our studies.

“Is it all about grades? I have to do well because my family has such high aspirations for me; a degree is my ticket to a good life.”

“I try so hard, but then I blow it on the test.”

“I do really well in a class if the teacher is interesting.”

“How can I juggle all my family responsibilities and all these assignments?”

“I know my future is on the line, but I just can’t get motivated.”

This book is a guide to show you how to become the collegiate student you wish to become—how to academically transform yourself. If you are not quite the student you wish to be (or not nearly the student you wish to become), then open your mind and your heart to the messages herein. We are learners, too, both as students and as teachers, and we have walked these roads before. Come with us and we will show you what college learning is all about and how you can master it.
SELF-ASSESSMENT: My Willingness to Become a Successful Student

The first step in becoming a successful student is to assess your openness to the changes college demands. With 5 being “Almost Always” and 1 being “Almost Never,” assess your readiness for changes you expect this semester. Rate each of the following statements honestly by circling the appropriate number.

1. I am confident about my abilities to succeed in college.  
   Almost Always 5  Sometimes 4  Almost Never 1

2. I am open to change some of my academic behaviors and study habits.  
   Almost Always 5  Sometimes 4  Almost Never 1

3. I get personal satisfaction from completing goals.  
   Almost Always 5  Sometimes 4  Almost Never 1

4. I routinely initiate studying when assignments are made.  
   Almost Always 5  Sometimes 4  Almost Never 1

5. I engage in difficult academic tasks without giving up too easily.  
   Almost Always 5  Sometimes 4  Almost Never 1

6. I enjoy learning something new.  
   Almost Always 5  Sometimes 4  Almost Never 1

7. My grades are a good indicator of my abilities.  
   Almost Always 5  Sometimes 4  Almost Never 1

8. I try to think openly about issues even if they conflict with my ideas.  
   Almost Always 5  Sometimes 4  Almost Never 1

9. I use different learning strategies for different subjects.  
   Almost Always 5  Sometimes 4  Almost Never 1

10. I am hopeful about my success in college.  
    Almost Always 5  Sometimes 4  Almost Never 1
Add up the numbers you circled. Your total score will be between 10 and 50. The higher your score, the more likely you are to be open to necessary changes. For a score below 30, write or reflect on the items for which you have concerns and consider talking with a trusted friend, a family member, a teacher, a counselor, or an advisor.

INTRODUCTION

What a joy to be human! We have harnessed the physical world; we can reflect on our feelings. We can understand important aspects of this world, including ourselves. We can change what we do and how we feel. We can achieve what we wish. The opposites are also true. Our humanness can be a burden. We can be ignorant of the world and ourselves. We can stay stuck in old ways of being and feeling. We can fail ourselves and fail others.

What makes the difference between these two possibilities? It is our basic nature to survive and to invent and to achieve and to change. It is the nature of humans to learn, but fear and laziness get in the way. Although learning is a basic skill, it must also be developed.

At the heart of the learning process is a mystery. Scientists are just beginning to know how our brains work. For tens of thousands of years, this extraordinary ability has been hidden from us. Now technology is opening a vision of mental functioning. Each day we are discovering more about how humans learn and change. We know we have learned something when we experience a change in our thoughts, feelings, or actions. Those changes are evidence that we have learned from experiencing new information or circumstances (Lefrançois, 2000). Thus, learning happens continually as we interact with all that is our environment.

One fact about being human is not a mystery—we can direct our thoughts and feelings and choose our actions. In other words, we have free will. We exercise that will within a societal framework of laws and cultural expectations. You may not feel very free at all, but in a real sense, you are. As authors and teachers, we believe your abilities to choose goals and behaviors are foundational to becoming a successful student. Certainly as a college student you have made the choice to pursue a program or profession. In every class you are free to learn or not. You choose what receives your attention and effort. You choose what you value.

As teachers, we help students set priorities in their lives. Your first priority is to determine the life you want to have and the person you want to be.
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A QUALITY WORLD

Humans are the only creatures who can imagine perfection but not attain it. Bookstores and magazine racks illustrate our yearning for perfection and for the control to attain it, but we are inherently imperfect. Are we ever smart enough, beautiful enough, good enough, fast enough, lovable enough, successful enough? The no-man’s-land we all live in is in between our concept of perfection and our own state of imperfection. Although “trying to be perfect is the most tragic human mistake” (Kurtz & Ketcham, 1992, p. 5), we are loathe to relinquish our ambitions and slide into inaction. Finding the balance between the ideal and the real is the focus of the remainder of this chapter.

As humans, we dream of the lives we want—relationships, accomplishments, values, and possessions. That vision is one we begin to create from birth. William Glasser (1998), a noted American psychiatrist and developer of two important concepts—reality therapy and choice theory, calls it our quality world, and each is unique to the individual. Each of us has mental pictures of “(1) the people we most want to be with, (2) the things we most want to own or experience, and (3) the ideas or systems of belief that govern much of our behavior” (p. 45). It holds our deepest values and feelings. It holds our hopes for the way we would like to live. Our quality world holds the best ways to satisfy one or more of our basic psychological needs—love/belonging, power, freedom, fun. It is the place where we would feel completely loved and protected. These are the concepts about which we care passionately. We look upon each new experience—person, thing, or idea—from the perspective of whether it contributes or detracts from our quality world. Does it move us closer to that world, or farther away?

Even though we move back and forth between the everyday external world and our quality world numerous times each day, it is rare when we conceptualize, or imagine, our quality world as a world, a place that holds the summation of our hopes and beliefs. Every time we think about the perfect mate, the grades we want, the job we desire, or any one of the dozens of attractive images that come to mind during the day, we are thinking about our quality world. When we experience hope about a relationship, excitement about an idea, or longing for a possession, we are shaping and reshaping our quality world.

Are our quality worlds healthy and good? Not always. An addict yearns for the next rush; the power hungry fantasize about exerting their control over others; the selfish long for love without having to love in return; the lazy look for accomplishment without effort; the greedy want more than their share; the cruel enjoy the pain of others. As we mature, self-reflection can help us ascertain how healthy and ethical our quality worlds are. However, self-reflection
in isolation rarely works. We desperately need feedback from the people and systems we respect. We have to use that feedback, not simply accept it unconditionally. Our parents cannot design our quality world; neither can our teachers, preachers, politicians, or peers. It is our job, our responsibility, to build our quality world; it is, according to Glasser (1998), the core of our life, no one else’s.

Ironically, no one specifically tells us that we must build our own quality world; in fact, far too many people try to build it for us. College can be a brutal experience if our quality world is not congruent with, or does not match, the reality of that life.

Because our quality world drives so many of our fantasies, dreams, goals, and actions, a crucial decision that we make is whether we will ground it with a value system that is ethical, balanced, and wise. In this postmodern age in which diverse traditions and systems are honored, such a decision is complicated and difficult. One example is to know where our rights end and the rights of others begin. For some of us, that boundary of self-esteem is treacherous. We either take advantage of others or allow them to take advantage of us. We may do too much for others and not expect them to do for us. Ethical, balanced, and wise quality worlds are the greatest guarantee that we have to build a good life.

**TWO CASE STUDIES**

ANNA is beginning her second semester of college. Long ago, she chose the dream of attending college and becoming a professional, so she learned how to work hard. Anna carefully created a picture of who she wants to be, and she has tried diligently to match that picture. Although she has had her share of surprises and disappointments about roommates, assignments, and professors, generally she is faring well. She is comfortable on campus and has begun to make genuine friendships, she goes home to see her parents only every five weeks or so, and she seems to have gracefully relinquished the relationships that had so dominated her last two years of high school. Academically, she has found her footing. She has had to change her study habits; now she studies every day. Her grades have stabilized at the C+ to B level, and she has begun serious inquiries about different majors. She plays intramural soccer and has started working 10 hours a week for the student center. She regularly participates in the student organization of her religious...
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denomination. Anna’s friends often verbalize that they envy how easily
Anna seems to balance academics, friends, family, and other activities.
When she hears her friends’ comments, Anna feels puzzled, because she is
just doing what seems comfortable and right to her. Why do her friends seem
to struggle so? They are all talented; they have the same opportunities. Yet
they fall prey to procrastination; their decisions often seem like reactions to
immediate situations.

Case Study Questions: Do you believe, as the authors do, that the internal pic-
tures we create of the lives we want have powerful influences on how we live
our lives? Why or why not? What internal pictures have you created for the life
you wish to lead?

JESSE earned a football scholarship, an accomplishment that fulfilled his
parents’ dreams. They were excited that he was going to college, but even
more thrilled that he would play football at the collegiate level. He accepted
their vision without question and dreamed of athletic success. However, reality
was shocking. He was no longer the star. As a freshman, he was not even a
starter. Classes were more difficult than in high school, and he felt he had no
time for himself. Academics were forced to a backseat as he strived to suc-
ceed on the team. Jesse grudgingly kept the vision of athletic success through
two seasons, but he grew to understand that the quality world he wanted in-
cluded academic as well as athletic achievement. Finally, at the end of his
sophomore year, Jesse told his parents the truth. He was uncomfortable in the
conflict between athletics and academics and ashamed of his grades. Jesse
withdrew into himself the next summer and painfully pondered what he
wanted in his life, now and in the future. Gradually, he came to the conclusion
that he wanted a sense of freedom to explore new ideas and different types of
people. His competitive spirit was still alive, but now it turned to the class-
room. He wanted the ability to choose his own priorities, his own actions, his
own direction. His quality world was forming as he thought about the college
life he wanted to build. He chose to leave athletics and his scholarship, know-
ing that he would have to find a part-time job for financial support and take
student loans to finish school. However, that choice gave him more study time
and more energy to focus on academics.

Case Study Questions: Considering his circumstances, did Jesse make the
right choice to leave athletics and give up his scholarship? What would you
have done if you were Jesse?
Improving Our Quality World

As teachers for many years, we believe an important life skill is our ability to discern and improve our quality worlds. How should such discernment occur? A crucial aspect of any such system is reflection, our ability to think deeply and carefully about important issues and their relationship to one another. What follows is one method for discernment, a series of reflective questions in four major arenas of life—relationships, work, belief, and service (see Figure 1.1).

**Relationships.** As humans, we are social creatures. Most of us place relationships at the core of our lives. A significant other, family members, friends, colleagues, roommates—these are the people with whom we share our lives. We laugh with them, fight with them, cry with them, celebrate with them, dream with them. There is a tie, a bond, among us. These are the people who know the truth about us, and they love and care for us. We know and do the same for them. Trust and safety are at the center of our quality relationships.

Have you ever asked yourself what are the quality relationships in your life? How closely does the reality meet the dreams and hopes you have for relationships? Where are the differences? Are your visions of quality relationships healthy and hopeful? How do relationships give meaning and purpose to your life?

**Work.** Across all cultures and all times, people work most of their lives. Work is a major avenue of deriving feelings of productiveness, a basic requirement of a healthy self-view. As a young child, you began working by going to school...
and learning. That was your job in your family, although you probably had chores to do as well. School may still be your primary work, even if now you work at a part-time job that earns you a paycheck. On the other hand, school may take second or third place after family and your job.

At this time in your life, you probably have several visions of work in your quality world. One is the vision of how you wish to be as a college student; in other words, what collegiate experiences do you wish to have? How will you perform collegiate work and what feelings will ensue from your efforts? What subsidiary role does other work play? Another vision is the one you hold of the work you are currently doing. A vision most of you carry is the work you will do after graduation. Remember Anna’s clear vision of herself in a professional career. What is your vision of your working career? Where will it occur? What responsibilities will you have? What do you wish to achieve? How does work give meaning and purpose to your life?

Your collegiate work is probably your primary job now. It is important to maintain your professional attitude and work habits at school as well as at work. Show up on time ready to learn, do not leave early, and put forth your best efforts on homework and exams. The work ethic you create as a student will follow you into your career.

Belief. All of us believe in something. Whether we believe in the sacred or the secular, order or chaos, atheism or religion, we all believe. It is human nature to try to make sense of our existence. We rely on our families and our culture to help us find those explanations that fill our quality world. As we move from stage to stage in life, it is healthy to question those explanations. What are your beliefs? What values do you think are important? What beliefs give meaning and purpose to your life?

Service. A basic tenet of human behavior is that we rely on others as they rely on us. We are individuals, but we are also part of larger groups. Thus, some people are willing to work for the common good by participating in service activities. Obviously, volunteer work is a service activity, but there are many others as well. Voting, paying taxes, helping a neighbor or a stranger, contributing to a charity, showing patriotism, obeying community laws—all are service behaviors. Circumstances at particular times in our lives dictate how much or how often we are willing to serve. However, service is one of the core components of a healthy life, so determining a variety of service behaviors gives us many more opportunities. What role does service play in your quality world? How does service give meaning and purpose to your life?

The concept of a quality world may be new to you. We hope you will give it careful consideration, for we believe that if you carefully and thoughtfully adjust the images and feelings that constitute your quality world to a greater
congruence with the life you realistically desire to lead, then your motivation to achieve that life will become easier.

The purpose and strategies of this text rest on your ability to choose (and to control) your thoughts, feelings, and behaviors to reach carefully selected goals. We will share how you can increase your ability to evaluate your individual academic situation and plan and execute appropriate action. Becoming a competent student is an individual journey; each of us is a unique learner. Our term for this journey is *academic transformation*.

**ACADEMIC TRANSFORMATION**

Often we contemplate what it would be like to be different. Our fantasy lives are filled with images of success and acclaim, attractiveness and competence, pleasure and joy—all without effort or cost. The no-man’s-land between fantasy and reality is a hard, barren place, but we want to share with you an oasis in that desert. It is possible for humans to transform themselves, in their thoughts, behaviors, and feelings. It is possible for us as students and teachers to transform ourselves, but we must choose carefully exactly how we want to change and what we want to become.

This text focuses on academic transformation—how to become the college student you wish to become—however, the principles and strategies herein will be easily transferable to other areas of life. Our conviction is that truly successful college students are those who do more than make a good GPA; they also have fulfilling personal and social lives, have a clear view of their future professions, develop their physical and spiritual lives, and participate in their communities. Those standards are challenging for any student, and they are accomplished within the academic framework of their lives.

This text focuses on your work as a student. **Academic transformation** is *the process whereby you will carefully assess your current situation as a student, determine specific short- and long-term academic goals based on your values, chart changes necessary to reach those goals, and then make those changes*. Along the way, you must continually evaluate your progress and make the appropriate adjustments; even your long-term goals may change.

It is likely that this time of your life is a time of extraordinarily rapid change. A continual process of reflection, goal setting, accountability, analysis, and adjustment is a good method to support your efforts to become academically successful. Throughout this
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The Steps of Academic Transformation

Assess your current academic situation. Consider such things as your academic standing (honor, good, marginal, probation, probationary entrance); scholarship/financial aid requirements; extracurricular activities (athletics, social or subject organizations); residence (oncampus, commuting). Are your learning skills (reading, writing, mathematics, thinking) strong, average, or weak? What is your level of self-confidence? Of stress or anxiety?

Set short- and long-term academic goals based on your values. What are the external forces (finances, family, academic requirements) that affect your academic goals? What are the internal forces—your personal definition of success, your desires for personal and social activities, your search for the best career—that affect your academic goals? Goals should be specific so that you will know when you have reached them. Examples could be a GPA for the term, specific grades in each course, or acceptance into a particular major or program.

Create a list of immediate objectives and an action plan to meet them. Examples of immediate objectives can include reading assignments before class, attending class regularly, and so on. Action plans may include getting enough sleep, going to the library to read and study, using an academic planner to set specific study times, and so forth.

Work to accomplish your objectives. This step is the hardest step. You have to do what you have determined is important. So, use a to-do list every day and mark what you accomplish; encourage yourself to follow your plan; ask friends and family to support your efforts.

Evaluate your progress. At the end of each day, evaluate what you have done and create the to-do list for the next day. Check completed items in your planner and circle any items that were not finished; move them to the next day. What, if anything, is blocking your progress? How can you resolve it?

Make adjustments as needed, and repeat. At the beginning of the next week, take a step back and review. Are your goals and objectives still the same? What challenges have emerged for this coming week? Do you need to seek help from your instructors, study labs or groups, classmates? This time is best used to confirm your accomplishments and chart your tasks for the next week. It is also a good time to reflect on your personal and social goals. How are you?

In this text we will introduce you to the research, theories, and practices that form the foundation for the steps of academic transformation, and the process will become habitual because you will do it again and again. You may already have strengths in certain areas, such as goal setting, and may want to improve your ability to create action plans. Conversely, you may have the motivation to work hard but have difficulty knowing the best methods of working to meet your
goals. The exercises at the end of this chapter will help you begin to master this process. As you read each chapter and complete the exercises, you will increase your mastery.

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**Exercise 1.2**

**Strengthening the Transformation**

As a beginning exercise in using the six-step process of academic transformation, do the following:

1. Brainstorm a list of at least three goals you would like to accomplish within the next six months. Do these goals meet your values?
2. Give a brief reason next to each item on your list why you want to accomplish it.
3. From this list, create one objective that you could accomplish within the next few months.
4. Set a plan of action (at least three strategies or specific behaviors) to help you complete this objective.
5. Design a method to track the chosen behaviors you are doing.
6. Evaluate your progress weekly for your objective.
7. Make changes and adjustments as needed after you evaluate your progress.

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**BECOMING AN AUTONOMOUS LEARNER**

An excellent example of academic transformation is a student’s gradual movement from a **teacher-directed learner** to an **autonomous learner**. Early educational experiences are teacher directed. Teachers expect students to learn by following the teacher’s assignments and directions. Students are rarely required to set their own learning goals or deviate from given guidelines. They view the teacher as the source of the right answers, the authority (Weinstein, 1988).

These students write down what the teacher presents, usually word for word. They read the textbook assignment, and they often use rote memory to answer test questions. They depend on the teacher to make connections. The result is that procrastination and boredom are frequent companions.

Whereas this attitude and these behaviors are frequently sufficient for high school, they can be deadly in college. College professors value autonomous learners. Beginning college students often exert real effort in their courses, but...
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when they try hard and use the behaviors that have worked well in the past, they can become confused when the results are disappointing. It is common to hear students say, “I studied harder for that test than I have ever studied before, and I failed it! I don’t know what to do.” They are being called to become autonomous learners, but no professor uses that term. It is a secret password to college success.

An autonomous learner is a person independently competent in a wide variety of academic tasks, able to actively achieve goals based on values, and skilled in self-reflection. We have identified seven important characteristics of students who are consistently successful in a collegiate environment. As you read the following explanations of the seven characteristics, evaluate how much of each you have already acquired.

1. Autonomous learners have a realistic view of themselves and their academic abilities. Separating fact from fantasy and reality from wishful thinking about ourselves is a major psychological task as we move from adolescence to adulthood. An emotionally healthy and realistic self-esteem is foundational to the effort of reflection, evaluation, and acceptance of our own academic abilities.

Where would you place your academic self-concept?

Fantasy-based -> Reality-based

2. Autonomous learners are ethical. A healthy self-awareness leads to a clear understanding of our own values and ethics. Simply believing in a principle is insufficient; living by our values and beliefs is essential to healthy self-esteem. When we are students, academics is our work. Academic honesty and integrity are important components of a successful college career, and they are the method by which we develop our system of professional ethics. If we cheat on college tests or papers, then we are likely to cheat at work.

Where would you place your academic behavior?

Unethical -> Ethical

3. Autonomous learners set realistic and appropriate goals for academic achievement. Few abilities are as crucial as that of setting realistic and appropriate goals for any endeavor, and academics is no exception to that premise. A goal can be as large as graduation or a semester GPA, or it can be as immediate as planning to study history for one hour tonight. To set realistic academic goals when there are other legitimate goals in their personal, family, social, work, and physical life is a difficult skill for some college students to master. Balance is the elusive goal for which we strive; the closer we get to balance, the closer we will come to the good life.
4. Autonomous learners understand their own learning strengths and weaknesses. To set realistic and effective academic goals, we must know our own learning strengths and weaknesses. For example, if I am a slow reader, then I have to allocate more uninterrupted time to my assignments than my roommate who is a skilled reader. Through accurate academic self-assessment, we can choose the best major, the best semester schedule, and the best learning strategies.

How would you rate your awareness of your learning strengths and weaknesses?

Poor 〈_______________________________________〉 Good

5. Autonomous learners use effective learning strategies and adapt those strategies to new situations. Hundreds of learning strategies are available for use, but choosing the most effective way to study a particular subject at a particular time is a skill acquired by reflection and practice. The common metaphor for this skill is a toolbox, a reference to the idea that a competent student creates a collection of strategies that she uses appropriately in different situations, depending on her goals, situation, and abilities. You can enhance and expand your current collection of strategies through the various ideas and examples in this textbook.

How would you rate your ability to appropriately vary your learning strategies?

Poor 〈_______________________________________〉 Good

6. Autonomous learners manage their behaviors to reach their goals. Having appropriate goals and knowing the best strategies are meaningless unless we do the behaviors to learn. In other words, we have to work at being a student in a timely way. Procrastination and avoidance can destroy academic achievement, so we must learn how to control our own actions.

How well do you manage your academic behaviors?

Unproductive 〈_______________________________________〉 Productive

7. Autonomous learners use appropriate resources. Teachers, study groups, tutoring programs, library resources, other students, and many other resources exist for any course. Accessing those resources promptly is an important skill.

How effectively do you use resources?

Rarely 〈_______________________________________〉 Often
An autonomous learner is also successful in collaborative processes. Modern professional life relies on the abilities of people to work together to solve problems and create effective solutions; thus, learning to participate in learning groups and teams during college will provide effective tools for later success.

CONCLUSION

In this chapter, we have asked you to carefully consider three subjects: quality world, academic transformation, and the autonomous learner. We hope that you will engage in a serious reflection of these concepts as they apply to you through your completion of the guided journal questions following the chapter summary and key concepts. Simply reading an idea has little or no effect on us unless we make the effort to relate that idea to our own thoughts, feelings, and behaviors. Here is your chance to make these concepts meaningful.

As teachers and students, we have come to understand that competency as a college student can be learned. The learning skills in this text grow from what we now understand about our brains—how we learn, know, think. Journey with us as we explore cognitive and behavioral psychology, personality theory, and concepts from philosophy and business.

SUMMARY

• Our quality world begins with the people we want to be with, the things we most want to own or experience, and the ideas or systems of belief that govern much of our behavior. It holds our deepest values and feelings as well as our hopes for the way we wish to live. It is a place where we feel loved and protected.

• Our quality world should be steeped in our value system—one that is ethical, balanced, and wise.

• When we experience hope about a relationship, excitement about an idea, or longing for a possession, we are reshaping our quality world. Reflection is the process we use to continuously evaluate and reshape our quality world. We also use feedback from others we trust.

• The four major arenas of life we reflect on in our quality world are relationships, work, belief, and service.
• Academic transformation is the process whereby you will carefully assess your current situation as a student, determine specific short- and long-term academic goals based on your values, chart changes necessary to reach those goals, and then make those changes.

• There are six steps to academic transformation: assessing your current academic situation, setting short- and long-term academic goals based on your values, creating a list of immediate objectives and an action plan to meet them, doing the work, evaluating your progress, and making needed adjustments.

• The natural progression of moving from being a teacher-directed learner to an autonomous learner is an example of academic transformation.

• An autonomous learner is a person independently competent in a wide variety of academic tasks, able to actively achieve goals based on values, and skilled in self-reflection.

• Autonomous learners have a realistic view of themselves and their academic abilities, are ethical, set realistic and appropriate goals for academic achievement, understand their own learning strengths and weaknesses, use effective learning strategies and adapt those strategies to new situations, manage their behaviors to reach their goals, and use appropriate resources.

KEY CONCEPTS

- Academic transformation
- Autonomous learner
- Belief
- Quality world
- Reflection
- Relationships
- Service
- Teacher-directed learner
- Work

GUIDED JOURNAL QUESTIONS

1. Describe your academic strengths and weaknesses as a learner, particularly in relation to reading, writing, mathematics, and critical thinking. Be as specific as possible by citing previous experiences, courses, and grades. What concerns do you have about beginning this semester?

2. Choose one of the four arenas—relationships, work, belief, service. Describe an example that illustrates a positive aspect you are happy to have in your world. Then describe an example that you believe is not how you want to live. What changes can you make in the second example?
3. What do you envision to be your life’s work? Is it different from what you may currently be experiencing? How does (or will) work give meaning and purpose to your quality world?

4. An excellent example of academic transformation is a student’s gradual movement from a teacher-directed learner to an autonomous learner. Now that you have read this chapter, define “academic transformation” in your own words. What types of transformation would you consider important for yourself during this period in your academic pursuits?

5. Review the list of seven competencies of an autonomous learner. Which competencies have you successfully achieved? Which are you willing to work toward achieving? Explain.

6. What preparations did you make before you came to college that assisted you in being a successful student? What do you wish you had done differently to prepare yourself?

The Last Word

This book began 40 years ago when I walked into a classroom of 20 unsuspecting freshmen who wanted to be successful in college. I had always been a successful student, but at that moment I realized I didn’t know how to teach anyone how to do it. Thanks to all those students who went with me down paths of discovery as I figured things out.

—De Sellers
As we delve into the world of college thinking, we discover complex and challenging theories to guide our development. Autonomous learners develop the capacity to learn and demonstrate their knowledge in widely diverse situations. Many of your college experiences will simulate the work life you desire. Understanding and using your collegiate academic experiences successfully will develop your ability as an autonomous learner.

CHAPTER HIGHLIGHTS

- The Role of Thinking in Study
- Types of Knowledge
- Levels of Intellectual Performance

I think, ergo I learn.
Chapter 2

Exercise 2.1

SELF-ASSESSMENT: Thinking About Learning

College requires you to think and learn at very different levels of complexity. With 5 being “Almost Always” and 1 being “Almost Never,” assess your assumptions and feelings about your thinking and learning. Rate each of the following statements honestly by circling the appropriate number. Completing this exercise will help you identify areas of concern you may have as you begin to contemplate more complex learning activities.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Almost Always</th>
<th>Sometimes</th>
<th>Almost Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I can explore many differing viewpoints on a topic and maintain my objectivity.</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>2. I think deeply and thoughtfully about a variety of issues and topics.</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>3. I enjoy learning facts, dates, names, and events in courses such as history.</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>4. I enjoy learning how to work through a procedure in a math or accounting problem.</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>5. I am good at deciding when to use a particular learning strategy as I move from course to course.</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>6. I look for or create specific examples to help me understand new concepts.</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>7. I prefer to apply (demonstrate, compute, construct, solve) what I am learning when possible.</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>8. I am comfortable comparing and contrasting ideas such as two or more theories or historical events.</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>9. I find it easy to critique my own work such as a research paper I have written.</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
</tbody>
</table>
Thinking and Intellectual Performance

10. I enjoy creating (devising or developing) new ideas based on what I have learned in class.

Add up the numbers you circled. Your total score will be between 10 and 50. The higher your score, the more likely you are to be open to thinking and learning at higher levels well beyond memorization. For scores below 30, write or reflect on the items for which you have concerns and consider talking with a trusted friend, a family member, a teacher, a counselor, or an advisor.

THE ROLE OF THINKING IN STUDY

Human learning means a difference occurs within the learner. We think differently, behave differently, and/or feel differently as a result of mental activity. Thousands of scholars since ancient times have struggled with epistemology, which is “the philosophical term for the theory of knowledge. It attempts to understand how knowing occurs and to discover its ground, its limitation, its validity and trustworthiness and its relation to truth” (Hosinki, 1992, p. 150, italics added). One of the goals of this text is to help you develop a comprehensive understanding of the many ways in which learning can be discussed. As philosophers and psychologists try to describe human learning, they usually resort to comparisons. Here are several typical comparisons for human learning used in the last 25 years:

- Describing mental processes as if the brain were a computer
- Describing human memory as a filing cabinet
- Describing study skills as if they were tools in a toolbox

Each of these metaphors has its advantages and limitations. As you read this text, you may create your own comparisons to help you understand concepts.

Our ability to think is one aspect of our minds, and that ability is different from knowing. We think about the knowledge we have. There are stages of thinking ability (not intelligence) that range from the unreflective thinker to the master thinker (Elder & Paul, 1996). No guarantee exists that a person will become a critical thinker in college; in fact, many graduates are not critical thinkers. Becoming a critical thinker means that a person can routinely use higher-order thinking skills based on reason and evidence, not only in studying but also in life. Critical thinking “is the ability and disposition to improve one’s thinking by systematically subjecting it to intellectual self-assessment” (Elder & Paul, 1996, italics added). Effective study strategies help develop such skills.
An important aspect of critical thinking is the constant ethical concern of being fair:

Fair-mindedness entails a consciousness of the need to treat all viewpoints alike, without reference to one’s own feeling or selfish interests, or the feelings or selfish interests of one’s friends, community, or nation. It implies adherence to intellectual standards (such as accuracy and sound logic), uninfluenced by one’s own advantage or the advantage of one’s group. (Paul & Elder, 2001, p. 5)

Becoming fair-minded is challenging because it is so much easier to be the opposite, selfish and shortsighted. To become fair-minded, we must be intellectually humble, courageous, empathetic, honest, perseverant, confident in our reasoning ability, and autonomous (Paul & Elder, 2001). College is a wonderful opportunity to develop these traits if we take the initiative, and college faculty value critical thinking. They will consistently push you to think critically on papers, projects, and exams.

It is easy to let the academic performance demands of tests, papers, and projects limit what we learn and become. Our contention is that because you will spend many hours studying to pass tests and assignments, you might as well seize this opportunity and study to develop your critical thinking skills at the same time. If you do, you increase the likelihood that you will be able to bring your thoughts, emotions, and actions together to reach your life goals and experience fulfillment and a sense of well-being (Paul & Elder, 2001).

Frame your study by thoughtful questions and deliberately push yourself to analyze, apply, and evaluate the information fairly. Search out the assignments and the instructors that will help you develop advanced thinking skills. If becoming a critical, fair-minded thinker is an important goal for you, then you can accomplish it through your undergraduate study.

When we think, we make sense of what is going on—that is, we create meaning. In academic study, we attempt to make sense of a content field, such as history, biology, philosophy, or economics. Each subject that we study represents a distinctive way of thinking about a particular set of questions, and those questions result in the basic concepts of that field. Those concepts provide the underlying unity in the field. Some examples are as follows:

- **mathematics** as the development of a language for quantification
- **algebra** as arithmetic with unknowns
- **sociology** as the study of how the life of humans is shaped by the groups in which they are members
- **physics** as the study of mass and energy and the interrelations between the two
- **philosophy** as the study of ultimate questions and their reasoned answers
Thinking and Intellectual Performance

- **biochemistry** as the study of the chemistry of life at the molecular level (Paul & Elder, 2001, p. 149)

If we can understand the basic concepts in a field, then we have a much better chance of creating meaningful learning in our daily study. Here are some beginning questions to help you determine such concepts:

- What is the main goal of studying this subject?
- What are people in this field trying to accomplish?
- What kinds of questions do they ask? What kinds of problems do they try to solve?
- What sort of information or data do they gather?
- How do they go about gathering information in ways that are distinctive to this field?
- What is the most basic idea, concept, or theory in this field?
- How should studying this field affect my view of the world?
- How are the products of this field used in everyday life? (Paul & Elder, 2001, p. 152)

Sometimes a good place to find the basic concepts and the logic of a subject is in a good encyclopedia. Your text may also have some introductory material that is useful. Having a clear grasp of the concepts and logic of each course provides you a mental framework in which to direct your learning. That mental framework also helps you understand and remember the material.

**Exercise 2.2**

**What This Academic Success Course Means to Me**

Take a few minutes to critically think about this academic success course using the questions we have just mentioned. Next, write a letter to a friend or family member with the purpose of describing this class by reflecting on some of the basic concepts for this course. Be sure to include the reasons you enrolled in the course and what you most hope to gain personally by the end of the term. You may find your syllabus and the Table of Contents helpful to you as you compose your letter. The objective of this exercise is to help you explore the meaning of this class by critically thinking about the content.

Introductory courses in a content field typically are more difficult for students than advanced courses because the basic vocabulary, concepts,
and logic of the field have yet to be learned. Freshmen and sophomores take many new subjects simultaneously and are surprised by the difficult workload.

All academic subjects are the product of thinking. Thinking creates content. Thinking expresses, organizes, maintains, and expands content. Thinking analyzes and evaluates content. Thinking restructures and transforms content. Whenever you study, you can choose the level of thinking you want and need to use. The deeper your level of thinking, the deeper your level of learning. The fastest way to deepen your learning is to ask questions about the content:

- What is my purpose in studying this content?
- What are my instructor’s expectations for my learning this content?
- What are the questions/problems of the content to be considered?
- What concepts are important to those questions/problems?
- What information do I need to explore those questions/problems?
- How can I relate this information to daily life?

Your thinking ability is the cornerstone of your capacity to learn in college, and it will vary from subject to subject. Sometimes you will intuitively ask the questions that lead your study; other times you will need to be much more deliberative and find other sources to help you.

In the following sections, we use a freshman’s course schedule to show three important characteristics of college learning: types of knowledge, levels of intellectual performance, and range of difficulty of material.

TYPES OF KNOWLEDGE

CASE STUDY

JENNIFER, a beginning freshman at a local community college, is excited about being in college. During orientation she worked with an advisor and registered for 16 credit hours: English Composition, College Algebra, World History, General Biology (with a lab), and Educational Psychology. Jennifer was a B+ student in a large, urban high school, and she is a little apprehensive about this first semester. She is living in an apartment near campus, but her parents are not far away. In high school she was a competent student, but she rarely felt challenged. Jennifer is eager to do well in college, for she wants a professional career like her parents have.
Like most students, Jennifer has always studied a variety of subjects, but she has never reflected on the differences and similarities between subjects and the demands of each one. Her Educational Psychology professor started the term with a lecture on the three types of knowledge—declarative, procedural, and conditional—that seem to be especially helpful for collegiate learning. Each type varies from the other in three important ways: how we acquire (or learn) that knowledge, how we store that knowledge in our memories, and how we retrieve and use that knowledge.

Declarative Knowledge

Declarative knowledge is possessing specific information about something. Examples of such knowledge are remembering and understanding our name, our social security number, the quadratic formula, four proposed causes of the Civil War, the chemical symbol for sodium, or Einstein’s Theory of Relativity. Declarative knowledge is usually facts or theories, but it can also be personal experiences, such as knowing which classes you are taking this semester. For the purpose of academic learning, we focus on declarative knowledge as factual (terminology, specific details) and conceptual (categories, principles, theories, models). In collegiate learning, factual knowledge consists of the basic pieces of information in a particular academic discipline. Conceptual knowledge is the larger groupings of related ideas. To create conceptual knowledge, we group factual knowledge into classifications and categories. Then we can use those to create principles and generalizations. Finally, principles and generalizations form theories and models (Anderson & Krathwohl, 2001). In the earlier section devoted to thinking, we discussed the concept of academic disciplines and how each has a unique vocabulary (factual) and set of foundational theories (conceptual). You will build a beginning body of factual and conceptual knowledge in each of the courses you study, and in your major field of study you will build a large and deep body of conceptual knowledge throughout your collegiate years.

Several of Jennifer’s classes rely heavily on declarative knowledge: World History and Educational Psychology and the lecture section of her General Biology class. All are full of definitions, data, and concepts, that is, declarative knowledge.

Propositions

Some of the most interesting research in learning has been the investigation of the nature of declarative knowledge and how it is believed we store it in our memories.
Researchers have labeled the basic unit of declarative knowledge as the proposition, one thought or one idea (Gagné, 1985). For example, the sentence The courageous student asks a question in class has three ideas or propositions: the student is courageous, the student is in class, and the student asks a question. As we are reading a textbook or listening in class, we do not consciously think of the single, small ideas that flow and combine into larger and larger units, but psychologists believe that our brains recognize individual propositions and store them as discrete units (schemata) that are linked by meaning. Schemata are defined as mental networks of related facts and concepts that influence the acquisition and understanding of new information (Slavin, 2003, 2006).

Many study strategies for declarative knowledge use structured and deliberate memory storage and retrieval practice as the primary model for mastery. These strategies attempt to mimic the way in which we believe our brains store and retrieve this type of knowledge. Such strategies help us deeply process our learning to make connections to what we already know. Later chapters describe in detail many of these techniques such as summarizing, visualizing, mapping, networking, diagramming, and creating compare and contrast grids. One other helpful characteristic of declarative knowledge is that college students seem able to acquire and store this type of knowledge quickly, and the more time they allow themselves, the more likely they are to master it at deeper levels.

Although Jennifer is a good reader and has an excellent vocabulary, she is quickly stunned by the amount of reading her instructors expect her to complete in the declarative knowledge classes. In high school, she simply paid attention in class and looked over the material the night before the test, remembering enough to answer the questions the next day in class. However, college texts seem different; she finds that they tend to have much more information and that information seems far more complicated. Upon reflection, she begins to understand that she can remember the factual knowledge, but she is having trouble with the complexity of the concepts. She slowly begins to change her study techniques to pay special attention to the conceptual knowledge her teachers stress. She also chooses to participate in several study groups with other students who have similar learning goals.

**Case Study Question:** What other suggestions do you have for Jennifer as she continues to explore new approaches to learning declarative knowledge at the college level?

Because our understanding of an idea mandates how our brains store and later access and retrieve that idea for use on a test or on the job, an important study strategy for declarative knowledge is to stop and test ourselves on what we have just been studying. Can we explain it in our own words? Can we give
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FIGURE 2.1 An Example of Learning Declarative Knowledge

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explain it in your own words.</td>
<td>Roman emperors used street festivals, executions, and games (gladiators) to pacify the populace in Rome.</td>
</tr>
<tr>
<td>Create examples from your own experience.</td>
<td>Professional sports provide a vicarious experience to release aggression and experience competitiveness.</td>
</tr>
<tr>
<td>Think about similar ideas or concepts.</td>
<td>Present-day government programs give services or tax cuts to specific parts of the American public.</td>
</tr>
<tr>
<td>Link to prior knowledge.</td>
<td>The movie Gladiator shows how the government pacified the general public.</td>
</tr>
<tr>
<td>Create questions to test yourself.</td>
<td>Compare methods of how governments influence and control their constituents, with special attention to the Roman government of the first and second centuries, C.E.</td>
</tr>
</tbody>
</table>

examples from our own experiences? A further strategy is to integrate this knowledge into something we already know. How does our prior knowledge relate to the ideas just presented? Can we link this knowledge to something we learned in another class? Does it contradict something the teacher said? The more connections we can make between this new piece of knowledge and other pieces already stored in our brains, the more likely we will remember it when we need it and the more likely we will really understand it. (See Figure 2.1 for an example of learning declarative knowledge.) No one had taught Jennifer to read and study in these ways, so she struggles during her first semester.

Most declarative knowledge presented to college students is in words, through either lecture or text. Yes, effective teachers and writers also use graphs, charts, and tables, but the major message is in words. So the task of the student is to take the words and do something with them to achieve meaning.

Procedural Knowledge

To know how to do something is different from knowing about something. When we know how to do something, such as read, add fractions, create an income
statement, or write a marketing case study, we have **procedural knowledge**. When we use procedural knowledge, either physically or mentally, we are actively creating a result. Generally, acquiring procedural knowledge means learning a skill. An example would be the ability to add fractions. A simplistic overview of the steps of that ability contains the determination whether like denominators exist; if not, the conversion of all denominators to one common term; then the conversion of numerators to the appropriate units; then the adding of the numerators (but not the denominators); and, finally, the reduction of the resulting fraction.

**Productions**

Psychologists have labeled the *process of knowing how* as **productions** (Gagné, 1985). A production flows in a logical, systematic sequence, something like a flow chart that is often used in designing computer programs. When we are first learning a production, each step comes slowly. We may make errors in the sequence—omitting, inserting, or transposing steps. Our work is conscious and slow. But something happens as we practice the task. We become faster and more accurate, and, most important, we do not have to devote much of our conscious minds to the task. Doing the task becomes automatic.

Understanding or meaning plays as important a role in learning procedural knowledge as it does in learning declarative knowledge. If we only memorize a production, a rule, or a procedure without understanding it, we are unable to adjust to a slightly changed situation or problem. We just follow rules blindly and are helpless when we are confronted with changes. However, if we understand the production and why it is structured the way it is, then we can often apply the production to new situations.

Jennifer is taking two primarily procedural knowledge courses this term: English Composition and College Algebra. The lab section of General Biology is also somewhat procedural. In high school, Jennifer did fairly well in mathematics because there were frequent homework assignments, quizzes, and exams. She had many opportunities to practice problems, and most of the high school quizzes relied heavily on memory. Her first College Algebra test was a shock, for the instructor combined several procedures into one problem. Sheer memory no longer worked; she had to understand the procedures to be able to solve the problem.

Procedural knowledge cannot exist without the appropriate declarative knowledge. For example, our knowledge of what a fraction is and what
properties it has (declarative) pairs with knowledge of how to reduce a fraction (procedural). Psychologists believe that the two types of knowledge are stored closely to each other in our brains, again hypothesizing that meaning is the link.

For Jennifer, learning (acquiring) procedural knowledge is quite different from learning declarative knowledge. Because she has difficulty understanding the concepts of procedural knowledge classes such as math or accounting, the key to success is an ongoing effort. Excellent class attendance and participation, supported by a large quantity of homework exercises, are the beginning steps. Teachers rarely give (and students rarely do) enough homework exercises to truly master a production; therefore, successful students usually work extra problems until the process (production) seems easy, automatic, and fast. (See Figure 2.2 for an example of learning procedural knowledge.) Because acquiring a production is most likely to happen by practicing over a long period of time, procrastination and the resultant cramming are deadly for this type of learning. It is almost impossible to learn procedural knowledge at the last minute. Jennifer quickly adjusted her study techniques in College Algebra by working more problems every day and attending tutoring sessions, so her performance on the second test improved.

Case Study Question: What other suggestions do you have for Jennifer as she continues to explore new approaches to learning procedural knowledge at the college level?
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Procedural knowledge requires time and practice to acquire. It is an active process that yields a product. Although it is slow in the beginning, it becomes rapid, accurate, and automatic. If we understand the process, we will be able to apply it in new situations.

Conditional Knowledge

*Conditional knowledge*—knowing *when and why to use particular strategies*—is the third type of knowledge directly related to academic learning. When we understand the nature and the requirements of an academic task such as a test or project, we are using conditional knowledge. When we are aware of our own learning strengths and weaknesses and adjust our studying accordingly, we are using conditional knowledge (Anderson & Krathwohl, 2001). (See Figure 2.3 for an example of using conditional knowledge.) Much of this text is about acquiring the most appropriate strategies for collegiate learning. Students with highly developed conditional strategies are successful learners; they are both efficient and effective. They are able to thoughtfully maximize their abilities, whether they are in the classroom, a

**FIGURE 2.3** An Example of Using Conditional Knowledge

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Know different strategies for different tasks.</td>
<td>Review note cards, all notes and the PowerPoint notes from the instructor. Write practice essays. Study with a partner.</td>
</tr>
<tr>
<td>Understand why you should use certain strategies.</td>
<td>Creating and reviewing note cards will help with memorizing the terms, dates and concepts. Writing practice essays will help with comprehension and analysis of the information. This will also help sharpen writing skills. Studying with a partner will help fill in gaps in learning and provides a way to reinforce already learned material.</td>
</tr>
<tr>
<td>Know how to regulate your study.</td>
<td>Plan extra study time the week before the exam and schedule a time to meet with another student from the class to review the material.</td>
</tr>
</tbody>
</table>
study group, or private study. Such students know what memory techniques are most suitable for a science class; they use the appropriate note-taking techniques for a lecture class that uses objective testing; they use specific types of strategies to prepare for an essay exam; they organize their study time to competently master accounting procedures; they control external distracters to their concentration by manipulating their study environment. We believe that conditional strategies involve more than just the knowledge of when and why to use certain strategies; they also involve the knowledge of how to understand and control our own behavior. It is not enough to know what to do to reach our goals; we must be able to regulate our behavior so that we do what we need to do when and how we need to do it. This cluster of skills is difficult to master, but we have been helping students like Jennifer accomplish that task for many years.

Jennifer continues to expand her understanding of the many ways in which college academics differ from high school learning. She has increased her cognitive strategies (conditional knowledge) by utilizing different approaches for her declarative and procedural courses. She is coming to understand both her strengths and her shortcomings as a college learner. Now she needs a clearer understanding of the levels of intellectual performance she must master in college.

**Case Study Question:** What other suggestions do you have for Jennifer as she continues to determine when and why to use particular strategies (conditional knowledge) to learn declarative and procedural knowledge at the college level?

---

**Exercise 2.3**

**Using Declarative, Procedural, and Conditional Knowledge**

Match the type of knowledge to the correct activity. Completing this activity will facilitate your understanding of the three types of knowledge.

A. **Declarative knowledge**

B. **Procedural knowledge**

C. **Conditional knowledge**

1. _______ Practicing a problem using the Pythagorean theorem
2. _______ Explaining the law of supply and demand
3. _______ Memorizing musical symbols
Chapter 2

4. _______ Selecting a note-taking format for sociology class
5. _______ Comparing behavioral psychology with cognitive psychology
6. _______ Giving a persuasive speech
7. _______ Creating sample test questions to study for a biology exam
8. _______ Memorizing the state capitals of the United States

LEVELS OF INTELLECTUAL PERFORMANCE

There are several levels of intellectual performance—not different subjects or even different kinds of learning tasks, but different levels of mastery of one concept or one set of data. The primary contributor to this approach was Bloom (1956). He posited six levels, each with direct applicability to the academic setting. Bloom envisioned a stair-step model, with each successive level dependent on the one(s) below, and that model is still taught today to people entering the teaching profession. Recent scholars (Anderson & Krathwohl, 2001) have revised Bloom’s model to include a more intensive reflection of recent theoretical models of learning. In this text, we use much of the revised model so that we can investigate more closely the center point of collegiate learning—the necessity of understanding the meaning of academic material if we wish to retain and use it.

Figure 2.4 provides a matrix using the revised Bloom’s Taxonomy.

Remember

The entry point to learning academic material is to remember it—that is, to remember it long enough to be able to think about it. Most of us take this skill

<table>
<thead>
<tr>
<th>Remember</th>
<th>Understand</th>
<th>Apply</th>
<th>Analyze</th>
<th>Evaluate</th>
<th>Create</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revised Bloom’s Taxonomy of Educational Objectives</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

<table>
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</tr>
</thead>
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<td>Understand</td>
<td>Apply</td>
<td>Analyze</td>
<td>Evaluate</td>
<td>Create</td>
</tr>
</tbody>
</table>

...
for granted until we realize that we have just spent 30 minutes reading a textbook and cannot remember what we have read. The same phenomenon can happen in a classroom when we are listening to a lecture. We have to attend to the information and hold on to it if it is going to become something we will keep. Marking a text and taking lecture notes are two methods of holding on to academic material. Future chapters on cognitive learning theory and strategies give many strategies to help you remember academic material.

**Remember** is the ability to recognize or recall an idea, a fact, or an occurrence in a form similar to the original presentation (Bloom, 1956). Note that the definition denotes two types of remembering—recognition and recall. When we see an item and are able to match it with something we have seen before, we are recognizing it. Many test questions require this type of remembering. However,
there is a more complicated form of remembering. If we are asked a question about some piece of factual knowledge, and we can spontaneously pull that information from our memory, then we are recalling it.

Understand

Students frequently resort to memorizing without understanding and are then lost when professors ask them to use or evaluate the information. Although memory is necessary, it is insufficient for collegiate learning. The foundation of collegiate learning is to understand, the ability to construct meaning from the literal message in a communication. Understanding is a complex phenomenon, and researchers have hypothesized many different stages of this ability (Anderson & Krathwohl, 2001). However for the purposes of this text, we will use the original definitions created by Bloom in 1956 because we believe they are the best suited for students. He believed that we are able to translate, interpret, and extrapolate the information remembered when we understand (Bloom, 1956). In this text, we use comprehend and understand interchangeably.

To acquire comprehension may take much more attention and effort than simple remembering requires. We begin to examine this complex level of knowledge by using an example from Jennifer’s course in educational psychology, the concept of multicultural education. She has always been able to remember factual knowledge, but she is struggling with understanding the complexity of the concepts in this course.

Understanding usually begins with a concept or idea that is worded in either abstract or concrete terms. Most textbooks present a concept in abstract terms, such as the following example of a definition of multicultural education: “all students, regardless of the groups to which they belong, groups such as those related to gender, ethnicity, race, culture, social class, religion, or exceptionality, should experience educational equality in the schools” (Banks, 1993a, p. 24, as cited in Woolfolk, 1998, p. 163).

The first step to understanding is to translate an abstract idea into specific examples. When Jennifer reads the assignment, she creates several specific examples of what would constitute educational equality for people of different groups, then she reflects on the definition of exceptionality and thinks of an example of that idea. Often the most powerful method of translating an abstract concept into a specific example is to use a personal

<table>
<thead>
<tr>
<th>Understand</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong></td>
</tr>
<tr>
<td><strong>Step 2</strong></td>
</tr>
<tr>
<td><strong>Step 3</strong></td>
</tr>
</tbody>
</table>

Understand
memory that exemplifies the concept, so she reflects about an incident that had happened in her middle school science class when some of the students were gifted in science and others were not. Another example of translation occurs during the lecture when her college instructor presents a concept in concrete form first, then expects his students to move from that example to the abstract idea. His lecture begins with a story of a specific child’s experience in a fifth-grade classroom. Jennifer’s ability to translate that specific incident into an abstract statement of the concept imbedded in the example demonstrates her mastery of the first step of understanding.

The next step to understanding is the ability to interpret or explain, to articulate the difference between the concept and a specific example, to tell about the idea in your own words (Bloom, 1956). In our example, Jennifer would explain the core concept of educational equality. How would she explain this idea to someone from another country? Or another century? Does this concept mean that all children should have the same educational experience? Grappling with a concept is not an easy matter, so she begins to ask herself many questions. Her competency in explaining a concept lies in her ability to communicate the idea in her own words, without simply repeating the words used by the text or the professor.

The third step to comprehending is to extrapolate, the ability to see connections between two or more identified ideas or to make predictions based on the understanding of the ideas (Bloom, 1956). In many circumstances, our ability to simply ask What if...? may help us extrapolate the information. In the case of our example of multicultural education, some simple questions would help us understand this concept, such as What if funds are limited? or What textbooks would we need? or What if teachers do not have sufficient knowledge to...? It is not necessary, or practical, to examine all possible questions; usually one or two forays of extrapolation are sufficient to understand the concept solidly.

Apply

When we understand a concept or idea, then we can begin to use it in a variety of intellectual activities. To apply is the ability to use understanding of ideas correctly and appropriately in a new situation (Bloom, 1956). The most obvious example of application would be a case study. If Jennifer were given a description of a specific school curriculum, would she be able to recognize whether it followed the principles of multicultural education or not? Although our example is declarative knowledge, many application levels of college learning occur with procedural knowledge classes such as mathematics, accounting, and statistics. In understanding, “the emphasis is on the grasp of the meaning
Chapter 2

and intent of the material. In application it is on remembering and bringing to bear upon given material the appropriate generalizations or principles” (Bloom, 1956, p. 144).

Analyze

Another level of knowledge, **analyze**, is the focus of much college testing. It is *the ability to break the material into its constituent parts and detect the relationships and organization of those parts* (Bloom, 1956). Our example of multicultural education lends itself to many variants of analysis. An obvious analysis would focus on the different components that would have to exist for such education to occur, such as curriculum, materials, and teacher training. However, many other kinds of analysis are also possible. If you can analyze, then you can compare and/or contrast both within and outside the concept. Jennifer could describe the similarities (comparison) and the differences (contrast) between two different curricular proposals or three different texts with reference to this definition of multicultural education. She could trace the development of a multicultural education program in a school district.

Evaluate

The next level of knowledge is **evaluate**, *the ability to render a value judgment based on criteria and standards* (Bloom, 1956). An important aspect of evaluation is a critical reflection on both the internal logical consistency of a process or product and the external validity of that same product or process.

Evaluation assignments are quite common in the advanced courses in your major. Sometimes they involve group work and group presentations. In our example from educational psychology, Jennifer could be asked to review a middle school curriculum by the criteria presented for multicultural education and rate that curriculum with her rationale. She might be asked to defend the school’s decision to create an honors program for gifted students or a tutorial program for athletes during a school budget crisis.

Create

The highest level of knowledge, **create**, is often the most exciting of all the levels. Originally titled *synthesis*, it is *the ability to create a new product from the ideas or materials understood* (Bloom, 1956). One of the most common creative assignments is to design a new example of a concept or an idea. An assignment might require that Jennifer write a fifth-grade history curriculum unit
that would meet the premise of this concept. She could also be asked to infer three problems that could occur when such a curriculum would be proposed to a school board.

A practical note: Applying this theoretical model of intellectual performance is not always simple. We often stop and evaluate results at various points in the learning process. Such evaluation may motivate us to retrace our steps and begin to think about a topic in a different way.

Using the Taxonomy

An important academic skill is to identify the level of knowledge expected in different classes by different professors because the desired performance mandates the study strategies required for that level of mastery. In simple terms, you use different study strategies for an essay test at the analysis level than you do for a problem-solving test on the application level. Successful students vary their class notes, their study notes, their study times, and their test preparation according to the level at which they will be tested.

Exercise 2.4
How Do You Learn at Each Level?

For practice using the revised Bloom’s Taxonomy, use any chapter you have already read from this textbook to complete this exercise. After reviewing the chapter, provide an example of how you could use each level of the taxonomy in learning a portion of the chapter’s content. We have given you an example for the first level. Completing this exercise will help you understand how to use the taxonomy as a study tool.

The chapter I have selected is Chapter ___________.

<table>
<thead>
<tr>
<th>Remember</th>
<th>I could create note cards to help me memorize the important terms.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Understand</td>
<td></td>
</tr>
<tr>
<td>Apply</td>
<td></td>
</tr>
<tr>
<td>Analyze</td>
<td></td>
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<tr>
<td>Evaluate</td>
<td></td>
</tr>
<tr>
<td>Create</td>
<td></td>
</tr>
</tbody>
</table>
Chapter 2

CONCLUSION

In this chapter, we have given you some complex and important concepts that undergird successful academic performance. We will use these concepts repeatedly to demonstrate which study strategies will lead to the best performance in differing courses, assignments, and so forth. In this chapter and throughout the text, we will encourage you to understand yourself as a learner and to strategically use your time and talents to achieve your academic goals.

The most important word to remember is THINK. We expect you to think. Your professors expect you to think. Your future employers expect you to think. Think about your subjects; think about the profession you will be joining; think about yourself as a learner.

SUMMARY

- Thinking is not the same as knowledge. We think about the knowledge we have.
- Critical thinkers use higher-order thinking skills based on reason and evidence. It involves the process of evaluation or categorization based on previously stored standards.
- Becoming fair-minded is an essential element in critical thinking. It entails treating all viewpoints alike without our own predispositions and biases.
- When we think, we make sense of what is going on—we create meaning. We must create meaning from the concepts we learn in our different courses.
- The deeper your level of thinking, the deeper your level of learning. Asking questions about the content of your courses deepens your learning.
- Human learning means that a difference occurs within the learner. Academic learning is that set of knowledge and skills that our society expects as a result of school experience.

Exercise 2.5

Determining Levels for Test Questions

Review an old test (preferably a college exam—especially one from a declarative knowledge–based course). For each question, determine the level of intellectual performance required according to the revised Bloom’s Taxonomy. This exercise can be completed on most any type of exam (multiple choice, true/false, essay, and so on). Completing this exercise will help you see how different questions can test you at very different levels of thinking.
• There are three types of knowledge: declarative, procedural, and conditional.

• Declarative knowledge is possessing specific information about something. The basic unit of declarative knowledge is the proposition, one thought or one idea.

• Schemata help us recognize individual propositions, and the use of these mental networks helps us connect new information with prior knowledge.

• Strategies for learning declarative knowledge include explaining in your own words, creating examples from personal experiences, thinking about similar ideas or concepts, linking to prior knowledge, and creating practice test questions.

• Procedural knowledge is knowing how to do something, and a production is the process of knowing how. Productions flow in a logical, systematic sequence.

• Strategies for learning procedural knowledge include participating as much as possible when learning the new procedure, working extra problems and exercises to “overlearn” the material, and practicing over periods of time.

• Conditional knowledge is knowing when and why to use particular strategies based on understanding the task and ourselves.

• The use of conditional knowledge involves knowing different strategies for different academic tasks, knowing why to use certain strategies, and knowing how to regulate study behaviors based on personal learning strengths and weaknesses.

• According to the taxonomy, there are six levels of intellectual performance, each successive level being more complex and dependent on the one(s) below.

• Remember is the ability to recognize or recall an idea, a fact, or an occurrence in a form similar to the original presentation.

• Understand is the ability to construct meaning from the literal message in a communication.

• Apply is the ability to use understanding of ideas correctly and appropriately in a new situation.

• Analyze is the ability to break the material into its constituent parts and detect the relationships and organization of those parts—the ability to compare and contrast.

• Evaluate is the ability to render a value judgment based on criteria and standards.

• Create is the ability to create a new product from the ideas or materials understood.
Chapter 2

KEY CONCEPTS

Bloom’s Taxonomy (Revised) of educational objectives:
- remember, understand, apply,
- analyze, evaluate, create

Conceptual knowledge
Conditional knowledge
Critical thinking
Declarative knowledge
Epistemology
Extrapolate

Factual knowledge
Fair-mindedness
Human learning
Interpret/explain
Procedural knowledge
Productions
Propositions
Schemata
Translate

GUIDED JOURNAL QUESTIONS

1. What are several ways in which college learning differs from high school learning? If you have been in the workforce, how does college learning differ from job-related learning?

2. What is the difference between knowing, thinking, and critical thinking? Of the courses you are taking this term, in which ones will you need to fully develop critical thinking skills? In which will you have the most difficulty being fair-minded and open to new ways of thinking?

3. Of the courses you are currently enrolled in, which are the most and least enjoyable? Analyze your answers based on the type of knowledge each class primarily involves (declarative, procedural, conditional). Many classes may be a combination of the three. Do you see a trend in which type of knowledge-based course you are most comfortable with taking? Explain.

4. As you learned in this chapter, your college instructors will require different levels of intellectual performance. Using the taxonomy, list each of your courses. What do you predict to be the highest level of intellectual performance required for each class? Support your answers with concrete examples.

5. How do you learn material for a course that requires you to understand material such as sociology or psychology? Include in your answer several examples of learning strategies.

6. How do you learn material for a class that requires you to apply material such as accounting or mathematics? Include in your answer several examples of learning strategies.
7. How do you prefer your instructors to present the material (lecture, class discussion, PowerPoint slides, computer-assisted instruction, group work, and so on) in a declarative knowledge–based course? In a procedural knowledge–based course? Why are these your preferences?

The Last Word

Learning something new is always an exciting ride for me. In that way, I am perpetually childlike. I invite you to this perspective—just for today—get excited about learning.

—De Sellers
Learning in Class

*But I slept through class in high school.*

**CHAPTER HIGHLIGHTS**

- Your Job as a Student
- Range of Difficulty of Material
- How to Learn in Class

By the time you get to college, you have been a student for at least 12 years. You made each transition between levels: preschool to kindergarten, kindergarten to elementary . . . but the shift to college is often the hardest. One of the reasons is that you are simply expected to be an autonomous and competent learner. Easier said than done, even if you worked hard in high school.
SELF-ASSESSMENT: Skills for Success

Preparing adequately for class, listening intently, and taking good notes are essential skills for college success. With 5 being “Almost Always” and 1 being “Almost Never,” assess your skills for success. Rate each of the following statements honestly by circling the appropriate number. Completing this exercise will help you identify concerns you may be experiencing about these skills.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Almost Always</th>
<th>Sometimes</th>
<th>Almost Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I assess the difficulty level of each of my courses and revise my study strategies accordingly.</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>2. I can identify subjects where learning comes naturally compared to those where I have to work hard.</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>3. I read and/or complete assigned material before class.</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>4. I keep my attention focused during the entire class period.</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>5. When listening to a lecture, I can recognize the most important points.</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>6. I vary my note-taking to fit different types of courses.</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>7. I take organized and legible notes so I don’t have to recopy them.</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>8. I review my lecture notes before the next class.</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>9. I use a partner to help me fill in missing gaps in my notes.</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>10. I am satisfied with my current abilities to learn in class.</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
</tbody>
</table>
Add up the numbers you circled. Your total score will be between 10 and 50. The higher your score, the more likely you are to be skilled in preparing for class, listening, and note-taking. For scores below 30, write or reflect on the items for which you have concerns and consider talking with a trusted friend, a family member, a teacher, a counselor, or an advisor.

YOUR JOB AS A STUDENT

In college, your job as a student seems deceptively simple. You register for classes, get the syllabus and look at the requirements, show up in class, study for the exams, and move on to the next semester. If it appears to be so simple, why do more than 60% of students entering college fail to graduate? The answers are complex, but decades of research and inquiry yield clear results.

• College is harder. The expectations of professors are high, and the subjects are much more demanding.
• The responsibility for learning and performance is **yours**. No excuses, no rationalizations, no rescue.
• Students’ lives today are much more complicated. Many have to work one or two or even three jobs to support themselves. Most have to cope with the fast-paced, technology-driven, overinvolved, overcommitted demands of life in the twenty-first century. All this contributes to stress and anxiety.
• Seductions that take you away from learning abound. Whether it is connecting with new friends or old, social networking, gaming, partying, health and fitness activities, all require thoughtful management to contain.

As you look back over these factors, reflect about your own circumstances. What are the complicating factors in your life?

This chapter begins with an analysis of what makes some courses more difficult than others. Then we move swiftly into presenting most of the crucial study strategies you need to implement for in-class learning early in the semester. Be prepared to sit up and take notice.

RANGE OF DIFFICULTY OF MATERIAL

Why are some topics easy to learn and others difficult? The difficulty of academic content varies dramatically in college across three dimensions: the inherent difficulty level of the content; the manner and method of presentation;
and the skills, learning preferences, and prior knowledge of the learner. Successful learners assess the difficulty level of their courses and vary their study strategies accordingly.

Content Difficulty

The first dimension—the inherent difficulty level of the content—is important to acknowledge. Some subject areas are simply more complex than others; they require a more formal intellectual process. Higher levels of thinking require more complex vocabulary. An example is differential calculus, which is more difficult than algebra. Assignments in research methods in psychology tend to be more complex than social psychology. Anatomy and physiology are more difficult than botany. Organic chemistry is more difficult than inorganic chemistry. Tax accounting is more difficult than general accounting. And so on. Collegiate courses are not equal in their content difficulty. Experienced students carefully schedule such difficult courses; they try to take them in long semesters and often try to enroll in only one or two such difficult courses in a term. Even if students are interested and talented in the courses, these difficult courses tax them.

Quality of Presentation

The second dimension of difficulty is the manner and method of presentation. A good writer or a good lecturer can present material in an understandable format. The reverse is also true; poor writing or lecture skills can muddle a presentation and make the content difficult to learn. Many textbooks are badly written; they give the reader little help in discerning which ideas and facts are most important. On the other hand, some textbooks have a plethora of learning aids—introductions, graphs, definitions, summaries, questions, illustrations, and the like. And many teachers post PowerPoint presentations, outlines, and handouts on a web-based course management system.

College students realize that some of their instructors are knowledgeable in the content field but may not be expert teachers for beginning students. Poor or inappropriate teaching styles can include inarticulate speech, lack of clear examples, disorganized lectures, too rapid delivery of information, and reluctance to entertain questions or alternate points of view. When such a mismatch occurs, the responsibility for learning is on the student. If the information for a course is poorly presented, then experienced students initiate efforts
to secure outside sources, such as tutors, supplemental readings, and study groups.

Another difficulty arises when the material was created in a different time or culture. Art from another time or place can be difficult to understand. Translations are harder to read than originals; you are reading the ideas once removed. If the writing occurred in another century or culture, you have to make an imaginative leap to read as if you were from that time and place. Primary sources (those writings in which the author is the originator of the thought) are more exciting, and often more difficult, to read than secondary sources (those writings in which the author writes about the thoughts of others). Almost all textbooks are secondary sources. You are more likely to read primary sources in literature and philosophy courses.

Intuitive–Formal Continuum

We learn all the time, but academic learning is different from other learning. The difference between learning the plot of a movie and learning the political philosophy of Machiavelli is vast. The content may be inherently more difficult, and the presentation challenging or clumsy, but an individual learner’s interests, skills, preferences, and prior knowledge can also dramatically affect how difficult a particular course may be for that student. We call this dimension of the range of difficulty the intuitive–formal continuum. The easier and more natural a learning situation is for us, the more intuitive it is. The situation may seem easy because we bring life experiences that relate to the topic, because we have already learned many things related to the new material, or because we have a talent for that type of mental process. We may have a deep interest in the subject or we may simply be curious. Whatever the reason, we can just go with it. The teacher’s explanations seem clear, and we frequently think about the material outside of class. There is little or no anxiety, and we are often eager to learn. The readings seem easy, and we believe that they are easy because we are interested. The truth is probably the opposite; we become interested because it seems easy, natural, and intuitive. We will study the material, trying to remember certain definitions or facts, but night-before cramming seems to be sufficient. Generally, in intuitive learning situations, we do not have to make any specific effort to understand; understanding just seems to happen naturally.

By contrast, in a formal learning situation, the material seems so difficult and confusing that it is easy for our minds to wander from the lecture or the text, and we become bored. The boredom is often rooted in how hard it is for us to achieve understanding. Formal learning situations demand energetic, purposeful strategies and formal reasoning processes to make understanding easier. It is as if we are swimming upstream against a strong current. We may have to read
the book before class (and again afterward), sit close to the front of the classroom, use a formal note-taking system, and ask questions. We may have to study that subject every day, preread and outline the chapters, use a study guide, and find other students with whom to form a study group. The deliberate activity level is high because the result of our efforts should be understanding. If we cannot understand the material, what we may memorize does us no good, now or in the future. One encouraging note is the more successful we are in a formal learning situation, the more likely the subject will gradually move to the left on the continuum and become easier to us.

**CASE STUDY**

JAMAIL is an entering freshman in a community college. He enrolled in World Civilization and General Chemistry with a lab. He quickly realized that World Civilization was an intuitive course for him. He had liked history in high school and read many extra biographies; he often watched the History Channel. His college history teacher was a good lecturer and the required readings were long but interesting. Jamail had to learn how to take college notes quickly and how to answer complicated analysis test questions, but generally his study skills of reading and his class attendance adjusted to the college level rapidly. On the other hand, General Chemistry was instantly intimidating. Even though he had studied basic Chemistry in high school, this professor lectured rapidly, and the numerous terms and concepts seemed unfamiliar and confusing. The textbook was worse. Within three weeks, Jamail knew he was in trouble. He went to the campus tutoring program several times a week, joined a study group, and spent long hours going over the text and his notes. His efforts helped him barely pass the first test, but he knew that this formal learning situation would be his biggest challenge in the term.

**Case Study Questions:** What advice or counsel can you offer Jamail to help him feel more secure in Chemistry? In addition to the learning strategies he has already adopted, what suggestions can you offer?
Case Study Questions: What has been your biggest academic challenge? Be specific. Explain how you felt during the challenge. What learning strategies did you implement? What could you have done differently?

The more formal and difficult a learning situation is for us, the more deliberate our learning strategies need to be in order for us to be successful. Many students fear one course or another because they have struggled in that subject before. Their own anxiety and worry can sabotage a new effort. We are convinced that if students carefully plan how they will approach the subject, they can be successful.

Exercise 3.2

Range of Difficulty of Your Classes

Choose the two most difficult courses you are taking this semester and answer the questions by marking an “X” on the continuum. Then complete the statement listed below. This exercise will help you assess the range of difficulty of two of your courses. It will also help you brainstorm strategies to help you become successful in these courses.

Course #1 __________

Based on my ratings, I predict I will need to use the following learning strategies:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
Chapter 3

Course #2 ___________

Based on my ratings, I predict I will need to use the following learning strategies:

____________________________________________________
____________________________________________________
____________________________________________________

HOW TO LEARN IN CLASS

In four years of college you will spend almost 2,000 hours in classrooms listening to lectures and participating in class discussions. At least 80% of class time is lecture (Armbruster, 2009). If you master the skill of learning in class, not only will you be more successful academically, but your college experience will be much less stressful because studying out of class will be more effective.

It is easy to spot students who know how to learn in class and those who clearly do not. Pretend you are from another century or planet and watch a typical undergraduate class. How many students arrive well before the instructor or wander in 10 or 15 minutes late? Head toward the back of the room or insist on sitting in the first two rows? Sink gratefully into a seat and are immediately asleep or take notes attentively? Stay tuned in to their music or remove the headphones? Participate in class discussion or focus on text messaging?
Make no mistake. The purpose of a college class is to advance your learning in that course. The ideas that are presented, explained, and developed are not always duplicated in the text or on the course website. When you learn what you should in class, your study time can then focus on the outside readings and exercises instead of on the material you should have already mastered in class.

Listening and Note-Taking

There are few learning activities that are more cognitively demanding than taking notes during a college lecture. “Students must listen to the lecture, select important ideas, hold and manipulate these ideas in working memory, interpret the information, decide what to record, and then write it down” (Armbruster, 2000, p. 176). Educational research clearly shows that the completeness of lecture notes is positively related to academic achievement (Armbruster, 2000); in other words, the more complete our notes are, the more likely we are to be successful in that course. “The bottom line is that the real value of taking notes is to have them for review” (Armbruster, 2000, p. 179). Curiously, another person’s notes are usually not very helpful. What seems to matter is that we do the work to listen, select, hold, interpret, decide, and write. Succinctly, the task is difficult but important for academic success in order for you to have the materials you need to study for tests.

Passivity is your greatest enemy when you sit in class. You must find a way to engage in what is happening in the classroom. Class learning is more than simply transcribing the instructor’s notes into your notebook or your laptop. It is more than remembering the stories and jokes the instructor uses as illustrations and forgetting the main ideas. It is more than watching slides or computer displays. Becoming competent in note-taking takes most college students one or two semesters.

Good in-class learning requires good listening. We can have the ability to hear, but not the ability to listen. Real listening is hard work. As children and adolescents, we usually develop the ability to tune out rather than tune in. Social networking has also become an enormous distractor for deep listening. So, deep listening may initially seem like climbing a steep hill. It requires the following:

• **INTENT.** If we intend to listen and understand and keep reminding ourselves of our goals, then we are likely to get more information.

• **READINESS.** Being physically and mentally prepared for class helps. Fatigue, hangovers, and internal emotional upsets can keep us from listening. Reading before we go to class dramatically enhances our ability to listen deeply.
Chapter 3

- **RECORDING.** Whether we take traditional notes, use a laptop, print out guided notes from the course website, or some other method, creating a written record of what we hear helps us listen and understand.

- **CONNECTION.** The more we link what the instructional message is to what we know or believe/disbelieve or experience, the more we will retain.

Your learning strategies should vary in lecture, problem-solving, discussion, and distance education classes. What follows is a brief description of these types of classes and an introduction to several of the respected note-taking techniques. But first, we provide a list of useful note-taking strategies for most types of college courses.

**Good Note-Taking Strategies**

Good note-taking strategies develop with time and practice. The criteria are always whether the strategies help you learn what you need to learn. Obviously, strategies should vary from class to class and from student to student. Here are some general strategies that we recommend:

- Get enough sleep the night before classes.
- Attend all lectures.
- Arrive early with the right materials.
- Sit toward the front of the room.
- Date the first page of your notes each day.
- Use a heading to label the notes.
- Write in pen on one side of the paper (pencil fades).
- Use phrases, not sentences.
- Create your own symbols and abbreviations.
- Write down the main ideas, supporting details, and examples.
- Gently bring your mind back to the subject (when it wanders).
- Write down what the instructor emphasizes through pauses, repetition, summarization, and energy.
- Look for and mark relationships between the concepts.
- Review the material before the next class session and continue the review process several times each week.

**Lecture Classes**

Lecture classes differ dramatically in size, from 25 to 250 to 500 students. In lecture classes, you create study notes that, when combined with your outside
sources, should constitute your learning resources. Those notes should not replicate the book, but, instead, they should comprise a record of the main points of the lecture (there are usually five or six), relevant facts to support those points, examples that illustrate those points, and explanations of difficult ideas. Listen for concepts and facts you did not find in the readings.

The next section presents several note-taking methods for lecture classes: guided notes, Cornell notes, T-notes, discussion.

**Guided Notes**

Increasing numbers of college teachers manage their courses through a website. An advantage for them and their students is that they can post PowerPoint slides, lecture notes, or outlines online and expect students to bring printed copies to class. These guided notes—lecture outlines with room for you to record key points and examples—provide a strong organizational base for your notes, and research indicates that “guided notes improve all measures of note quality” (Armbruster, 2009, p. 233). See Figure 3.1 and Figure 3.2 for examples of instructors’ guided notes posted online.

**FIGURE 3.1** An Example of Guided Notes Using a PowerPoint Handout

- **Block Diagonalization**
  Matrices with non-diagonal elements equal to zero may be “block diagonalized.”
  
  If no mixing of axes occurs (like the mixing due to a $C_2$ operation) the resulting matrices are 1x1.
  
  The $x$, $y$, and $z$ coordinates are likewise block diagonalized.

  $C_2$: \[
  \begin{bmatrix}
  1 & 0 & 0 \\
  0 & -1 & 0 \\
  0 & 0 & 1 \\
  \end{bmatrix}
  \]

  $C_z$ on:
  
  $x$: \[
  \begin{bmatrix}
  1 \\
  -1 \\
  0 \\
  \end{bmatrix}
  \]

  $y$: \[
  \begin{bmatrix}
  1 \\
  -1 \\
  0 \\
  \end{bmatrix}
  \]

  $z$: \[
  \begin{bmatrix}
  0 \\
  0 \\
  1 \\
  \end{bmatrix}
  \]

- **Reducible Representations**
  
  We may separate $\Gamma$ into three separate representations based on $x$, $y$, and $z$.

  \[
  \begin{array}{c|ccc|c}
  \Gamma & C_2 & \sigma_{x(y)} & \sigma_{y(z)} & \text{Coordinate} \\
  \hline
  1 & -1 & 1 & -1 & x \\
  1 & -1 & -1 & 1 & y \\
  1 & 1 & 1 & 1 & z \\
  \end{array}
  \]

- **Breaks them up into three $x$ matrices. $x$, $y$, $z$ are independent of orthogonal.**

- **Works only when axes don’t mix.**

- $\#$s represent what happens to $x$, $y$, & $z$ as operations are performed.
Chapter 3

Perry's Theory of Cognitive Development

I. Students' developmental tasks are to:
   - become academically competent
   - learn to develop satisfying friendships & relationships
   - become indep. of parents & authorities
   - choose career & lifestyles
   - examine values & beliefs

II. William Perry (1970)
   - worked in Harvard U's Bureau of Study Counsel
   - encountered personality differences
   - became aware that what were thought to be personality differences were developmental patterns

III. Perry's Theory
   - identified 9 stages individuals progress through, each becoming more cognitively complex
   - stages are sequential
   - 9 stages are presented in 4 categories for simplification:
     - Commitment
     - Relativism
     - Multiplicity
     - Dualism

Advantages of this system are numerous:

- Printing and planning for a lecture in advance increases both intent and prior knowledge. It is especially helpful when students preview the material.
- The notes present the larger picture of the concepts of the course material. Thus, students can focus on the interrelationships of the concepts as well
Learning in Class

as capturing the relevant factual information. The result is that active learning and more critical thinking during class is possible.

- Study groups are more effective because they have a common starting foundation of material that is routinely referenced.

Although guided notes are popular among students, there are major pitfalls:

- Students report that class attendance is more difficult, as they can persuade themselves not to go to class because they have the outline notes (Armbruster, 2009). Yet class attendance is more efficient because what you learn there you do not have to learn on your own, and professors frequently lecture on material that may not appear in the text or outline. College tests reflect deeper information that is often only minimally shaped by the outlines, so the guided notes alone are insufficient.

- Students may mistakenly take a passive role in class and choose to rely on the outline and listening. Memory based on listening alone without the creation of notes tends to be weak.

Exercise 3.3

Guided Notes

Practice taking notes from one of the following guided note-taking formats for at least two class sessions using the guidelines listed below.

**Before Class:**

- Select one or more of the following formats:
  a. *Instructor’s PowerPoint Lecture Slides.* Access the course website and choose the printing option that best fits your note-taking needs (e.g., number of slides per page, lines for note-taking, and so forth). It is easiest to add additional notes in class when you print three PowerPoint slides per page.
  
  b. *Instructor’s Outline for the Lecture.* Access the outline on the course website, but increase the amount of blank space under the headings and then print a copy.
  
  c. *Instructor’s Lecture Summary, Lecture List of Topics, or Lecture Class Notes.* Access any of these, but again, provide some space so that you can add additional information. You instructor is expecting you to fill in the gaps during the lecture.

- Glance over the pages to familiarize yourself with the topics to be covered in class.
Chapter 3

• Compare the guided notes that you have accessed to the material you read or completed for class. This will help you see the bigger picture of the upcoming lecture.

DURING CLASS:
• Check off or highlight points on the guided notes as your instructor covers them.
• Add additional notes to the guided notes. This is the most important step!
• Decide quickly if you need to construct your notes in a formal note-taking structure like (e.g., Cornell or T-notes to be introduced next in this chapter).
• Implement the Good Note-Taking Strategies previously covered in this chapter.

AFTER CLASS (AS SOON AS POSSIBLE):
• Fill in any gaps to make your notes more complete and legible (you might consider comparing your notes with a classmate’s notes).
• Type the notes you have taken into your instructor’s electronic outline, especially if your handwriting is poor.
• Review any PowerPoint slides or other information posted to the course website after class, and check to make sure the notes you took during class are complete.
• Determine main ideas from the notes and write possible questions that might appear on the exam.

BEFORE THE NEXT CLASS SESSION:
• Review your notes at least once before the next class session.

Cornell Notes
Created over 40 years ago at Cornell University by Walter Pauk (1997), this system requires dividing note pages into three sections: the note-taking section, the cue column, and the summary area. This method works well for mostly lecture-based classes (especially those declarative courses with facts, details, and examples). It is an organized method for recording, revising, and reviewing notes.

To create a page for Cornell notes, draw a vertical line two and one-half inches from the left edge of the paper; end the line two inches from the bottom of the sheet. Then, draw a horizontal line two inches up from the bottom of the page. Also include your name, date, and the page number at the very top, on the left or right side. Paper in this format is available from most college bookstores in loose-leaf, spiral, and tablet form.
Once you have taken your notes, read over them and fill in any gaps to make your notes more legible. Then, determine the main ideas from the notes and write questions in the cue column. Using a plain sheet of paper, cover up the notes in the right-hand column. Read the questions you created and then recite aloud the answer. Check your answer by removing the plain sheet of paper. Repeat the sequence until you have mastered the material. After your initial review, write a summary statement (a couple of sentences) for each full page of notes in the summary area. See Figure 3.3 for an example of notes taken using the Cornell system.

**FIGURE 3.3** An Example of Cornell Notes

<table>
<thead>
<tr>
<th>Jared Schultz</th>
<th>Karl Marx</th>
<th>9-30</th>
</tr>
</thead>
<tbody>
<tr>
<td>p. 13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>What is Marx’s reasoning?</td>
<td>- Constant drive for new markets.</td>
<td>- Creation of new and insatiable needs.</td>
</tr>
<tr>
<td>What makes one’s life his own?</td>
<td>- The recognition of one’s morality as the necessary condition of authentic living.</td>
<td></td>
</tr>
<tr>
<td>What is authenticity?</td>
<td>- Authenticity is morality.</td>
<td>- The creation of the culture of fantasy, the eclipse of time.</td>
</tr>
<tr>
<td>When was Freud’s synthesis?</td>
<td>- Freud’s synthesis was between enlightenment and romanticism.</td>
<td></td>
</tr>
<tr>
<td>What is the importance of the shift?</td>
<td>- Shift to psychogenic from organic understanding of mental disease to understanding of psychogenic.</td>
<td>- Discovery of the unconscious.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Expansion of the sexual.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- The future of illusion.</td>
</tr>
</tbody>
</table>

Marx’s reasoning is the constant drive for new markets & the creation of new & insatiable needs.

According to Marx authenticity is morality.
Chapter 3

Pauk believes that it is important to review notes as soon as possible, at least before going to sleep. He stresses the importance of getting a global view of the notes while trying to retain the details. To do this, he encourages students to reflect by asking, “What’s the significance of these facts or ideas? What principles are they based on? How can I apply them to what I already know? How do they fit? What’s beyond these facts and ideas?” (Pauk, 1997, p. 209).

In an extensive review of research on lecture note-taking, Armbruster (2000) reported that students typically record fewer than 40 percent of lecture ideas (one study reported as little as 20 percent) and that students tend to record fewer notes during the latter part of a lecture. The research is also adamant that the quality and quantity of notes are both important; the more complete the notes are for review, the greater the potential for learning. How students prefer to learn can also influence learning. Some students tend to learn more from the actual note-taking process (as they organize and find relationships while writing the notes), whereas others tend to learn more while they review the notes. Thus, the pressure on college students is to be active and involved learners in the classroom as well as to become expert and flexible in the skill of reviewing their notes outside of class.

Exercise 3.4

Cornell Notes

Practice taking notes in the Cornell format from a lecture class for at least two class sessions using the following guidelines:

**BEFORE CLASS:**

- Draw a vertical line two and one-half inches from the left edge of a sheet of paper; end the line two inches from the bottom of the sheet (look for preprinted wide-margin paper at your college bookstore).
- Draw a horizontal line two inches up from the bottom of the page.

**DURING CLASS:**

- Take notes in the right-hand column as you would normally.
- Leave the cue column on the left blank except for brief notations to emphasize potential test questions, key terms, significant facts, and so on.

**AFTER CLASS (AS SOON AS POSSIBLE):**

- Fill in any gaps to make your notes more legible or type the notes you have taken if your handwriting is poor. Integrate your notes into your instructor’s electronic outline if posted on the course website.
- Determine main ideas from the notes and write questions in the cue column.
BEFORE THE NEXT CLASS SESSION:

- Cover up the notes in the right-hand column using a plain sheet of paper.
- Read the questions you created and then recite the answers aloud.
- Check your answers by removing the plain sheet of paper.
- Repeat the sequence until you have mastered the material.
- After your initial review, write a summary statement (a couple of sentences) for each full page of notes in the summary area at the bottom of the page.

Invite another student (one who is familiar with this note-taking system) to read over your notes and give you feedback. This exercise will strengthen your note-taking skills and aid you in learning lecture material.

Problem-Solving Classes

The purpose of problem-solving classes is simple: class time is used to solve problems and to discuss the process of doing so. The strategy for taking good notes in such a class is to write down not only the problem but also the verbalization of the steps. In other words, write down each step and then explain what was done in your own words. The sequence of steps is crucial. Math, accounting, economics, finance, computer programming, statistics, logic, and case study-based courses are all examples of problem-solving classes.

T-Notes

Introduced in 1983 to assist college students, T-notes, created by Archie Davis and Elvis Clark (1996), are a way to organize and learn different types of lecture information. Similar to the Cornell method, the T-notes system is also a method to record, revise, and review notes.

To use this system, begin by dividing a page of paper by drawing a large “T.” Extend the top of the T from the left margin to the right margin, leaving a space of one and one-half inches across the top of the paper. Extend the leg of the T down the center of the page, beginning from the top line to the bottom of the page. Above the T, center the title of the lecture or major topic. Also include your name, date, and page number at the very top of the left or right side.

As you encounter lecture information, divide the information between the two columns. For example, if you are given a term to learn, place the term on the left side of the T and the definition and examples on the right side. Or, if you are to learn a visual such as a diagram, draw the diagram to the left of the T and the explanation to the right. See Figure 3.4 for an example of T-notes.
Chapter 3

**FIGURE 3.4** An Example of T-Notes for Learning Terminology

<table>
<thead>
<tr>
<th>Bibiana Alvarado</th>
<th>Add and Multi Principle</th>
</tr>
</thead>
<tbody>
<tr>
<td>p. 6</td>
<td>1-23</td>
</tr>
</tbody>
</table>

- **Variable**
  - Represents a value; x, y, c

- **Equation**
  - Problem: x + 3 = 6, \( a^2 + b^2 = c^2 \)

- **Expression**
  - \( x + 3, c^2, a^2 + b^2 \)

- **How do we determine value of variable**
  - Solve for the variable

- **Evaluate**
  - Substitute / “plug-in”

- **Like terms**
  - \( 2x, 5x, 15zy, .05zy \)

- **Unlike terms**
  - \( 2x + 5xy, 3xy + 7zy \)

- **Distributive property**
  - \( a(b + c) = ab + ac \)

- **Addition principle**
  - For any real numbers a, b, c
    - \( a = b \Rightarrow a + c = b + c \)

- **Multi principle**
  - For any real numbers a, b, c
    - \( a = b \Rightarrow ac = bc \)

- **Using both +/- principles together**
  - ID variable
    - +/- terms as needed
    - simplify/combine like terms
    - +/- to isolate variable
    - simplify answer

T-notes are especially useful for learning procedures such as those common in mathematics or statistics. For example, if you are learning an algebra equation, place the formula on top of the T. Then write the steps to solving the equation to the left of the T and examples that correlate with the steps on the right of the T (see Figure 3.5 for an example).
The Quadratic Formula
\[ x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \]

<table>
<thead>
<tr>
<th>Rod Hill</th>
<th>The Quadratic Formula</th>
<th>2-11</th>
</tr>
</thead>
<tbody>
<tr>
<td>p. 25</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\( X \) represents the solutions of:

\( ax^2 + bx + c = 0 \)

Ex 1: Solve \( 5x^2 - 8x + 3 = 0 \)

(Already in stand. form)

Steps:

1. **First must find standard form of equation**

   \( a = 5, b = -8, c = 3 \)

2. **Then should try and factor — if it is not possible, then use the quad formula**

   \[ x = \frac{-(-8) \pm \sqrt{(-8)^2 - (4)(5)(3)}}{2(5)} \]

   \[ x = \frac{8 \pm \sqrt{64 - 60}}{10} = \frac{8 \pm 2}{10} \]

3. **Determine values for \( a, b, c \) and substitute into formula:**

   \[ x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \]

   \[ x = \frac{8 \pm 2}{10} \]

4. **The solutions of any quadratic equation can be found by using the quad formula (ALWAYS!)**

   \[ x = \frac{8 - 2}{10} \quad \text{or} \quad x = \frac{8 + 2}{10} \]

   \[ x = \frac{6}{10} \quad \text{or} \quad x = \frac{10}{10} \]

   \[ x = \frac{3}{5} \quad \text{or} \quad x = 1 \]

Thus, the solutions are \( 3/5 \) & 1
Chapter 3

T-notes are designed to be used as a self-test system similar to 3 × 5 index cards; however, the advantage is that you do not have to rewrite the information but simply cover any part of the T to self-test.

Exercise 3.5

T-Notes

Practice taking notes in the T-note format for a problem-solving class (math, accounting, science lab) for at least two class sessions using the following guidelines.

**BEFORE CLASS:**

- Divide a page of paper by drawing a large “T.” Extend the top of the “T” from the left margin to the right margin, leaving a space of one and one-half inches across the top of the paper. Extend the leg of the “T” down the center of the page.

**DURING CLASS:**

- Above the “T,” write the name of the procedure or topic.
- As you encounter lecture information, divide the information between the two columns. List the steps used to complete the procedure to the left of the “T” and examples to the right.

**AFTER CLASS (AS SOON AS POSSIBLE):**

- Fill in any gaps to make your notes more legible.

**BEFORE THE NEXT CLASS SESSION:**

- Cover up the notes on either side of the “T” using a plain sheet of paper.
- Recite aloud the answers.
- Check your answers by removing the paper.
- Repeat the sequence until you have mastered the material.

Invite another student (one who is familiar with this note-taking system) to read over your notes and give you feedback. This exercise will strengthen your note-taking skills and aid in learning problem-solving material.

Discussion Classes

Discussion classes are often great fun, but students frequently leave class without any notes. That behavior is dangerous because we rarely remember concepts unless we write them down and go over them, even if we have been interested in the discussion. In this type of class, the professor usually summarizes a main
point when the discussion ends. Listen for those summaries and record them. Discussion notes tend to be shorter, and they usually do not follow any particular structure. Ideas are important here, not details. Sometimes a good strategy is to meet quickly with another class member after class and compare notes. Before exams, brainstorm possible test questions in a study group. See Figure 3.6 for an example of discussion notes and possible test questions.

**FIGURE 3.6** Example of Discussion Notes and Possible Test Questions

<table>
<thead>
<tr>
<th>Sandy Chang</th>
<th>Discussion on Social Stratification</th>
</tr>
</thead>
<tbody>
<tr>
<td>11–28</td>
<td>p. 89</td>
</tr>
<tr>
<td>- Social Stratification?</td>
<td></td>
</tr>
<tr>
<td>System by which a society ranks categories of people in a hierarchy.</td>
<td></td>
</tr>
<tr>
<td>- 4 principles of Social Strat:</td>
<td></td>
</tr>
<tr>
<td>1. Char. of society—not simply a function of individual diff.</td>
<td></td>
</tr>
<tr>
<td>2. Persists over generations.</td>
<td></td>
</tr>
<tr>
<td>3. Varies in form.</td>
<td></td>
</tr>
<tr>
<td>4. Rests on widely held beliefs.</td>
<td></td>
</tr>
<tr>
<td>- Davis-Moore Thesis:</td>
<td></td>
</tr>
<tr>
<td>1. Positions that are most important (for society) and that require talent and/or training must be the most highly rewarded.</td>
<td></td>
</tr>
<tr>
<td>2. Most highly rewarded positions should be those that are functionally unique &amp; on which other positions rely.</td>
<td></td>
</tr>
<tr>
<td>- Social Strat (An explanation by Weber)</td>
<td></td>
</tr>
<tr>
<td>1. Model of Class Structure.</td>
<td></td>
</tr>
</tbody>
</table>

**POSSIBLE TEST QUESTIONS:**

1. Describe social stratification. Be sure to include the 4 principles of Social Strat.
2. According to Weber, what are the 6 social classes?
Distance Classes

A significant change in higher education has taken place in the past 25 years. Distance education has evolved through four generations of structure, although all four are still used. Distance education provides instruction when students and instructors are separated by physical distance but connected by technology.

The simplest distance education programs are correspondence courses in which students study independently and send their lessons and tests electronically or by mail. The next level in complexity are those courses with video and/or audiotapes and, perhaps, some audio broadcasts during which students can ask questions. The third generation uses the Internet for one- and two-way videoconferencing, email, chat rooms, and so forth. Some schools have recently begun to offer fourth-generation multimedia (multiple forms of communication such as audio and video) and hypermedia in which students participate in teleconferencing over the Internet; have access to a multitude of online sources such as tutorials, course materials, and online databases; and “collaborate over e-mail and within chat rooms” (Caverly & Peterson, 2000, p. 306).

An important characteristic of both the third- and fourth-generation distance education programs is whether the students interact with each other in real time (synchronous) or in delayed time (asynchronous). Distance education using technology such as telephone, television, satellite, Internet-based chats, or a virtual online environment such as Second Life®, are synchronous, meaning that the students and instructor can communicate together at the same time (also referred to as “real time”). Communication that does not occur in real time between two or more people is referred to as asynchronous learning such as an Internet-based forum, discussion board, blog or wiki (The University of Oklahoma Website, 2009).

Students attracted to distance learning course formats may be working full-time, deployed in the military, living in rural areas, enrolled at more than one institution, retraining for their career, or simply retired and wanting to increase the quality of their life with further education. To be successful, these students are

- self-motivated and enjoy learning in these types of virtual environments;
- self-regulated and self-disciplined with little trouble sticking to a schedule;
- comfortable communicating through writing;
- committed to working in isolation and not needing instant feedback;
- readily able to access the required technology and to use it properly (The University of Oklahoma Website, 2009).
To learn successfully in such situations, students must analyze the circumstances and create the appropriate notes for study. Although there are arguable advantages of flexibility for the individual’s circumstances, the disadvantages of solitude and ample opportunity for procrastination may make distance education coursework more difficult than traditional classroom study. Dropout rates are 15–20 percent higher for online courses than for traditional courses (Winograd & Moore, 2003). In distance education, students need to have strong time management and online research skills as well as the ability to self-direct learning. To counteract this difficulty, some teachers are setting firm time guidelines for module and lesson completion.

Exercise 3.6
A New Vocabulary
Can you define the following terms or phrases? If not, do a quick Internet Google search for each. Newer forms of virtual learning environments have already been invented since this book was published. Can you add two or three terms and definitions to this list? This exercise will increase your virtual learning literacy.

- Blended or hybrid course
- Blog (or web log)
- Chats (or virtual chats)
- Computer-assisted instruction
- Course management system (or learning management system)
- Databases (for doing library research)
- Discussion board
- eLearning (or E-learning)
- Listservs
- Podcasting
- Social networking (Facebook, Myspace, Second Life, Twitter)
- Virtual learning environments
- Vodcasting
- Whiteboards
- Wikis
Chapter 3

CONCLUSION

Becoming a skilled note-taker in a college class is an important step toward becoming an autonomous learner. This auditory and organizational skill directly relates to becoming a professional person who has numerous tasks to manage independently for a wide range of clients or supervisors. Each class session is an opportunity, so we hope you will be courageous and try many of these new techniques.

SUMMARY

• Sixty percent of students entering college today fail to graduate because (a) college is harder, (b) the students bear the responsibility for learning and performing, (c) students’ lives are more complicated today, and (d) there are more distractions today vying for students’ time.

• Experienced students will be able to identify the more difficult content courses and will carefully schedule no more than one or two such courses each term.

• The intuitive–formal continuum affects how students approach classes with less-than-ideal instructors or textbooks. Students’ interests, skills, preferences, and prior knowledge can also affect how difficult a particular course might be. The easier and more natural a learning situation is, the more intuitive it is.

• In a formal learning situation, students must employ purposeful, deliberate strategies such as reading the book before class, sitting close to the front of the classroom, using a formal note-taking system, asking questions, studying the subject every day, outlining the chapters, using a study guide, and forming a study group with other students in the class.

• The completeness of lecture notes is positively related to academic success in that course.

• In-class learning requires good listening, which entails intent, readiness, creating a written record of what is heard, and connecting.

• Good note-taking strategies develop with time and practice.

• Class notes should comprise a record of the main points of the lectures, relevant facts, examples, and explanations of difficult ideas.

• Learning resources are a combination of study notes and outside resources.

• Guided notes are teacher-generated lecture notes, outlines, or PowerPoint notes with room for students to record key points and examples.
• Cornell notes require dividing the paper into three sections: the note-taking section, the cue column, and the summary area. This system allows students to write questions in the cue column that correspond with the notes in the note-taking column and summarize material in the section along the bottom of the page.

• Designed to be used as a self-test system, T-notes are aptly identified because students draw a “T” on the note-taking paper. One column is used for terms and diagrams, and the other column is for corresponding definitions and explanations.

• T-notes are most effective in problem-solving classes, such as math, accounting, statistics, and logic. This format encourages students to write down not only the problem, but also the verbalization of the steps and their correct sequence in the next column.

• When taking notes in discussion classes, students should listen for and record the professor’s main point summaries, bearing in mind that ideas, not details, are what is important.

• To be successful in distance classes, students must be (a) self-motivated and enjoy learning in a virtual environment, (b) self-regulated and self-disciplined with little trouble sticking to a schedule, (c) comfortable communicating through writing, (d) committed to working in isolation and not needing instant feedback, and (e) readily able to access the required technology and to use it properly.

KEY CONCEPTS

Asynchronous
Content difficulty
Cornell notes
Discussion classes
Distance classes
Good note-taking strategies
Guided notes
Intent, Readiness, Recording, Connection (IRRC)
Intuitive–formal continuum
Lecture classes
Listening
Note-taking
Problem-solving classes
Quality of presentation
Range of difficulty
Synchronous
T-notes
Chapter 3

GUIDED JOURNAL QUESTIONS

1. Explain how well you adapted your learning when previous courses encompassed extremely difficult course content.

2. At some point in your past education you have had a lackluster high school teacher or college instructor. In other words, this person should have taken a different career path. Explain how well you adapted to the instructor’s poor quality of presentation.

3. List three activities (such as hobbies) in which you believe you have intuitive skills and background knowledge. How do you think you acquired such intuition for each of these activities? List three academic courses in which you believe you have intuitive skills and background knowledge. How do you think you acquired such intuition for each of these courses?

4. What is your favorite type of class—lecture, discussion, or problem solving? Explain why using specific examples.

5. Think about the classes that are easiest for you to take notes in and those that you find to be the most difficult. What are the differences in these classes? What can you determine from these differences?

6. Describe your current methods of taking notes and studying from lectures. Now that you have read this chapter, how do you think the Cornell and T-note systems will be useful to you?

7. Relate the experiences you have had with distance education or virtual learning environments. Explain why these types of learning environments were easier or more difficult for you. What were the advantages and disadvantages to taking these courses? Freely address any of the terms that you defined in Exercise 3.

The Last Word

The information in this chapter alone would have saved me countless hours of ineffective and even wasted study time my freshman year. My grades were good, but I paid a high price to earn them.

—Carol Dochen