

# HOW TO HAVE FUN AT SCHOOL, FIND FREE TIME, AND GET GOOD GRADES TOO!

By Terry Terry<sup>1</sup>

**ABSTRACT:** In today's competitive environment, businesses must adopt continuous improvement to succeed. As a result, engineering students must become familiar with continuous improvement to function in business when they graduate. The best way for them to learn is by putting these ideas into action in school. This paper presents a plan that shows students how to use their available time effectively, track their progress, foresee problems before they occur, and take action to prevent those problems. The paper is written primarily for students and has applications for all of education. I urge you to pass out copies of it to students you know and at ASCE Student Chapter meetings.

## HOW TO HAVE FUN AT SCHOOL, FIND FREE TIME, AND GET GOOD GRADES TOO!

The "lament of the freshman" is a universal cry of college students. "They work me so hard! I haven't got any time! I gotta study all the time or I'll flunk! College is so difficult!" Be honest, if you are or were a college student, you probably said or thought it. The problem is that most students buy into it. However, with a little planning, a slight attitude shift, and application of some simple skills, most students can find extra free time, have a lot more fun, and get more out of their education.

## THE PROCESSES OF EDUCATION

Everything is made up of processes. To improve anything, you must first understand the processes involved. Most failures are caused by failure in the process, not the individual. Understand the process, improve it, and the quality of the product will improve. This applies to every product, whether it is a manufactured good, a service, or an education.

Education has two major processes: teaching and learning. Teaching is the sum of the processes an instructor uses to present materials. Learning is the sum of the processes used to acquire knowledge. The student controls the learning processes. The instructor's presentation affects how the student receives information; however, it is ultimately up to the student to absorb that knowledge. The student's techniques of learning directly affect his or her ability to grasp the information presented. Students that improve their learning processes end up learning more with relatively less effort.

These are the principal elements this paper touches on to use to become a better student

- Modify the language you use to describe yourself.
- Adopt a professional attitude toward school.
- Set your goals.
- Develop a plan.
- Keep track of your study time.
- Monitor your performance.
- Modify your plan as needed to improve your performance.

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## LANGUAGE

Language is the most important invention of the human race. It is also the most powerful. Language gave us the ability to express thoughts and develop ideas. With it we can paint powerful, vibrant images. It can motivate or destroy an entire nation. Our use of language shapes the way we think and how we perceive the world.

Examples abound. Use racial or sexist epithets and slurs, and you reduce your target, another human being, to a sub-human level. You begin to believe that person is subhuman. (This often happens during war; propaganda dehumanizes the enemy.) Consciously remove those epithets from your language. Substitute humane and decent terms, and, over time, your attitude and behavior will change. This is the power of language. Modifying your language can slowly modify your behavior. In the next section, I will discuss how to harness this power to your benefit.

## ADOPT A PROFESSIONAL ATTITUDE

Most college students are fresh out of high school with little or no experience. College is where they go to learn to become something else: an engineer, a scientist, a historian, an accountant, a teacher. After all they are "only students." This use of language can lead to a passive mind-set.

Also affecting the mind-set of students are the following college myths and bad habits:

- College is really hard.
- College is primarily a social setting.
- Everybody studies at night.
- Everybody puts off homework until the night before class.
- Everybody pulls all-nighters to catch up.
- It's all right to skip classes.
- Homework isn't that important.
- Everybody crams before a test to pass it.

While not believing all of these myths, many students think at least some of them are true. The problem is that many college students don't have a professional attitude about school. Not because they aren't or can't become professional, but because no one has told them they were professionals. Let's look at being a student from another point of view, that of being a professional-in-training. Remember, no matter what you go to school to study, when you enter the job market it will be as a professional.

Adopt this attitude from the beginning. This is the first language change to start the process of shaping a new mind set. You are not "just a student"; you are a professional-in-training. Starting freshman year you are taking your first steps as a professional. Do things in a professional manner. Your job is to absorb as much knowledge as possible.

## GOALS

All professionals must have goals; what are yours? Well, they must relate to the reason you are attending college. They must be clearly expressed. They must be attainable. These are good primary goals

1. Get your degree.
2. Obtain marketable skills.
3. Gain as much knowledge as possible.
4. Have fun!

Take the time right now to write down your goals. If your goal is to earn a PhD, then put that as your number one goal. Then your subgoals are Bachelor's degree and Master's degree. You can do the same to refine the other goals. You can add more goals. But be careful to maintain your focus. Add too many or conflicting goals and you'll be spread too thin. This will increase your chance of failing to attain any of your goals. Also, define what you consider to be successful attainment of your goals. You need this as a gauge to measure your progress.

Attaining your degree is an obvious goal of attending college. Without the degree, the credit hours earned are just a group of courses without form. The degree indicates that you have completed a professional course of training and are qualified.

Obtaining marketable skills is as important as obtaining your degree. To secure a job, you must have an initial skill set that employers want. Use your elective credits to broaden your base and refine skills that make you more marketable.

Gain as much knowledge as possible. Your job is to absorb and comprehend everything your instructors are presenting. You are paying a lot for them to present that information. Make them earn it. Ask questions. Seek clarification. Be proactive. Drag the information out of them. It will benefit you in the long run.

The last goal, to have fun, tends to be neglected. This goes to your basic motivation for picking and staying with a profession. You must enjoy what you are doing to excel in it. Look at people that excel in this profession; you will find the common thread is that they honestly love what they are doing. Ray Kroc, the founder of McDonald's, put his love of the hamburger business eloquently: "You've gotta be able to see the beauty in a hamburger bun" (Peters and Austin 1985).

It is true that every profession has parts that are downright onerous. However, if you can step back, look at your profession as a whole and honestly say, "I really enjoy this, I'm having fun," then you're on the right track.

## PLAN

Now that you have goals, it is time to lay down a plan to attain them. We will use a tool referred to as the Deming wheel, or plan-do-check-act (PDCA) cycle. Fig. 1 is the Deming wheel in its simplest form (Deming 1982).

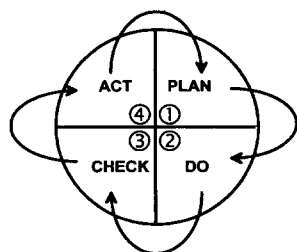


FIG. 1. Deming Wheel

Used properly, the Deming wheel is very effective. Here are the main parts.

- Plan: Determine and understand the processes involved and how those processes affect attaining your goals. Decide what data are needed to monitor the processes, and how to gather the data.
- Do: Put your plan into action and gather the data.
- Check: Analyze the data you gathered while doing the process.
- Act: What did you learn from the data? How can you use what you learned to improve the process?
- Plan (again): Take the new knowledge back to planning, improve the process, and continue through the cycle.

The key is that improvement never ends. You monitor what you are doing and refine the process to adjust to changes from outside influences, changes in performance, or changes in your goals.

## Plan: Set Up a Professional Work Schedule

Let's start with basics: time scheduling. You are a professional, so adopt a professional work schedule. Begin with an 8-hr workday and a 40-hr workweek. Monday through Friday start your workday at 8:00 a.m. Finish your workday at 4:30 p.m. or when your last class is over, whichever is later. This is the primary block of time you will devote to your profession. During this time you will attend class and do your assignments and other school work. Plan right now to leave your nights and weekends free; that is your time.

Blocking out a professional workweek focuses you on your goals. It helps set up that professional attitude you need to succeed. Besides, when you leave school you will be working on a similar schedule. Get use to it now. Line up as many 8:00 a.m. classes as possible. That way you have a primary motive to get moving in the morning.

Fig. 2 is an example of a schedule. Block out your class schedule on a similar one. The form you use is not as important as the act of planning your weekly schedule.

First block out the time you have no control over: classes;

	Monday	Tuesday	Wednesday	Thursday	Friday	
8:00	Math 101	Study At	Math 101	Study At	Math 101	8:00
8:30	Room 105	Dorm	Room 105	Dorm	Room 105	8:30
9:00	Study Room	Chem Lab	Study	Engineering	Study Room	9:00
9:30	105		At	Science	106	9:30
10:00	Chem		Library	Study Room	Chem	10:00
10:30	Room 400			120	Room 400	10:30
11:00	Study At			Study Room	Study At	11:00
11:30	Student Union	Lunch		169	Student Union	11:30
12:00	Lunch	Study	Lunch	Lunch	Lunch	12:00
12:30	Physics	At	Study Room	Study	Physics	12:30
1:00	Room 425	Library	327	At	Room 425	1:00
1:30	Humanities		Humanities	Student	Humanities	1:30
2:00	Room 316		Room 316	Union	Room 316	2:00
2:30	Study Room		Study		Study Room	2:30
3:00	357		At		320	3:00
3:30	Engineering		Student	Physics Lab	Engineering	3:30
4:00	Science	Union	Union		Science	4:00
4:30						4:30
5:00						5:00
5:30						5:30
6:00						6:00

Name: Joe E. Bushey

School: Watsamatta University

Semester: Fall 1994

FIG. 2. Weekly Work Schedule Planning

labs; if you work, work shifts; and so on. Then block out your remaining 40-hr schedule logically around them.

You may be tempted to ignore setting up a work schedule. Don't fall prey to this temptation. Planning your schedule ahead can make life easier and minimize stress.

### **Plan: Use Your Time Effectively**

Time management directly contributes to getting all your assignments done on time. It is important to use your workweek effectively. Schedule your work during the 8:00 a.m. to 4:30 p.m. workday. This is the time you are refreshed, alert, and best able to absorb what you are learning. If possible, don't work at night. You are tired from working all day, not as well focused, and you won't retain as much. Keep your nights and weekends as much for yourself as you can. Use them to relax, unwind, and recharge. During the workday you will be more alert and better able to concentrate. That means you will retain more of what is presented. In the long run you will be learning more and working less to do it.

Don't waste the time between classes. If you have an hour or two between classes, don't go back to the dorm to do assignments, crash out, or whatever. That trip to and from the dorms can be a primary time waster. A 10-min one-way trip to the dorm and back, three times a day, is an hour lost each day. That's 5 hours a week or 80 hours a semester. That's two full workweeks thrown away out of a 16-week semester just walking to and from class! Capture that wasted time for yourself.

### **Plan: Find Effective Workplaces**

Dorms are the prime social setting at college. You meet your friends there. It's your home and where you go to relax. Because of this you are more apt to be distracted if you attempt to work there. It's a natural reaction. It also makes the dorm a hazard to effective study.

The way around this problem is to find other places to work. There are always empty classrooms where you can work for a period or two. Think of these places as your office. Working in an empty classroom you are less likely to be disturbed or distracted. You can also use the student union or library. Just find a quiet corner to work where you can focus on your work and get it done efficiently.

To effectively use your workplaces, you may have to carry some extra books. Do it, the time you save will more than pay back for the minor inconvenience. If you need the reminder, indicate on your work schedule where you can go to study.

Keep in mind that these are your offices. If for some reason there are too many distractions, find another place to work.

### **Sample Plan**

Fig. 2 is a sample plan by a typical student, Joe E. Bushey. Joe has a 15 credit per hr workload of math, physics, chemistry, humanities, and engineering science. He arranged his courses so that he has three 8 a.m. classes. Most of his days end at 4:30 p.m.; except Thursday. Because of his physics lab, Joe's workday on Thursday will extend to 6 p.m.

To start his weekly schedule, Joe blocked out the times used by classes and labs. This only accounts for 18 hr: 13 hr of class time and 5 hr of labs. Joe then scheduled his study time. He set up to work in either a classroom, the library, or a quiet spot in the student union. This gets him out of the dorm and away from distractions. Joe's plan blocks out 23.5 hr for study. This is more than enough time to get his work done. As a bonus, Joe has every night and all weekend free.

### **Plan: Get To All Your Classes**

Go to all your classes. In the business world, if your boss said to meet him in his office at a 9:50 a.m., you would be waiting outside his door at 9:45 a.m. ready to go. Classes are the business meetings of your profession. You are obliged to attend those meetings. Also, you are paying for that class hour whether you attend or not. Don't throw that investment away. Make the most of it by attending and being prepared to absorb what is being presented.

### **Plan: Take Copious Notes**

While in class, take notes. Don't worry about the format. Get them down on paper. If you must make them neater, you can recopy them over into another notebook later. Even if the instructor is reading straight out of the text, take notes. Even if you never refer to your notes outside the class, take notes.

Note taking has these benefits. You become an active participant in the education process and concentrate on what is being presented. It is a primary reinforcement tool. The synergistic effect of hearing, seeing, and writing helps you to capture the majority of what is being presented on the first pass. Sit passively and you will lose most of the information presented during the class. Then you will work harder outside class, digging the information out of the book. If you take good notes and pay attention you will find you will spend less time studying and doing assignments outside class.

### **Plan: Do All Your Assignments**

Do all your work assignments. Note this language change. Students have homework, professionals have work assignments. Hand your assignments in on time and in the requested format. In a business setting, it is taken for granted that you will accomplish your work assignments on time. Late completion or improper format equates directly to lost business, lost revenues, missed opportunities, and, if it happens enough, unemployment. The assignments given by an instructor must be given the same attention.

### **Plan: Forget All-Nighters**

Quite bluntly, it is dumb to pull an all-nighter. Think about it. You have worked hard all day. You're tired. You're not really motivated because you really don't want to do it. You're probably sucking down coffee or soft drinks. Somewhere between 1 a.m. and 2 a.m. your brain starts to shut down from lack of sleep. You can't focus your attention properly. The results: the work you do at 3 a.m. will look just like that, work you did at 3 a.m. As added bonuses, you will retain hardly anything you studied and you will either skip classes the next day, be inattentive, or fall asleep during them. It is much better to schedule your time efficiently, and, if need be, work on a weekend rather than pull an all-nighter.

### **Plan: Do Assignments as Soon After Class as Possible and Get Ahead**

If you are in a class that hands out assignments only one class ahead, do them as soon after class as possible. The class work is fresher in your mind, which helps you to get the assignment done. If you have problems with the assignment, you have time to get help to complete it. This keeps you from getting into a time crunch.

Another wise use of time is to get ahead on assignments. Some instructors will give out several and sometimes all assignments ahead. Use that to your advantage. Do as many assignments ahead as you have the time and the ability. This

does not mean that you have to finish an entire semester's assignments in the first week. However, it does mean getting ahead as much as you can. There are advantages. You build in a cushion to your workload. If you get sick, you don't have to worry about doing an assignment if it is already complete. If some instructor decides to load you up, you can let work slide in another subject without falling behind.

What if you can't finish an assignment ahead because you don't understand the work? Well, normally you can do some of the work, so use that to your advantage. Set up the problem. Do as much as you can. If you get hung up, leave it unfinished and start the next. This points out what you don't understand. Make a note of it. When you go to the next class you can ask the key question that will clarify things for you.

By staying ahead, you are better prepared for class. You will know what is going to be discussed, and also your weak areas. You will be able to ask clarifying questions. You will get more out of the class than someone who is hearing or seeing the information for the first time.

### Plan: Analysis Tools

To improve a process, you need objective statistical tools to monitor it. Without these tools you cannot understand what is happening. For the process of learning, two types of tools are required: a qualitative analysis tool and a quantitative analysis tool. Fortunately the qualitative analysis tool is readily available, grades. The problem is the quantitative analysis tool. Ask a college student how much he studies and the normal subjective answer is, "a lot." Most students have no objective idea of how much time they truly spend studying. The reason is they don't keep track of that time. To fully comprehend and analyze your study techniques, you must log every minute of time you spend effectively studying. To do this, you need a study log.

### Plan: Study Log

Fig. 3 is a sample study log. The type of study log you use is not as important as the data you gather using it. It could be a small spiral notebook or a folded up sheet of lined three-ring binder paper. Just use a study log style that is easy for you, that you will always carry, and that you will use without fail.

You need data on the total amount of time you spend studying by subject. Here's how to collect it. Every time you start to study, take out your log and write down the subject and the time to the nearest minute. When you finish studying that subject, write down the ending time to the nearest minute. It's that simple. There is a catch, however. You can only log time you honestly spend studying. The following is not study time:

- Talking to friends (commonly referred to as BS-ing).
- Taking a break to grab a soft drink or cookies.
- Anything else that is not honest-to-god, nose-in-the-books, thinking-cap-on studying.

For example (Fig. 3), you begin to study chemistry at 8:56. Write it down. You finish the assignment at 9:14, write it down. You studied 18 minutes. You take a break, grab a soft drink, and then start math at 9:18. Log your start time. At 9:36 your best friend walks up to talk about the meaning of life. Write down your stop time as 9:36. At 9:57 your friend leaves and you again start to study math. Log your start. (Note, you spent 21 minutes talking to a friend. Without the log, you might think you were studying during that time.) Keep doing this and you will compile an accurate history of the real amount of time you spend learning your profession.

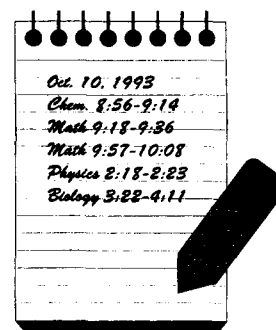


FIG. 3. Study Log

Yes, it is a pain to begin with. Yes, it will shock you when you see the amount of time you do (or don't) spend studying. But it really isn't that much work and the rewards you can reap from this little extra work are large.

### Plan: Tests

Don't cram for tests. You don't need to. If you attend classes, take notes, do all assignments, and effectively use your time, you will be ready for a test. If you feel you must study for a test, set aside some time during your workday for additional review. If it eases your mind, a quick review of important points might be appropriate the night before. But cramming the night before has the potential to get you nervous and upset. If you don't know it the night before, you're probably not going to know it for the test.

### Plan: Start Now!

As with any plan you have to start sometime. **DO IT NOW!** Don't wait until next week or next semester or next year. If you don't start doing it now, the odds are you will never start. Besides, if you get a handle on your work and free time, you can use the free time to do things you want to do. All without the nagging fear that you have to get that next assignment done.

### DO

You have completed all your planning; now put it in practice.

1. Adopt the new attitude. You are a professional in training.
2. Use a professional work schedule.
  - Set up a 40-hr workweek.
  - Start your workday at 8:00 a.m., finish your workday at 4:30 p.m. or when your last class is over, whichever is later.
3. Go to all your classes.
4. Take copious notes during class.
5. Use your time effectively.
  - Schedule your work during your workday.
  - Find empty classrooms or other places to use as effective work areas.
  - Do your assignments as soon after class as possible.
  - Get ahead on assignments, hand them in on time.
6. Log all your study time.

Work at it for a couple of weeks. In the beginning you may not feel comfortable with the plan. It will become easier as you continue. After a while, some of these new ideas will become a habit that will make learning easier for you.

## CHECK

Now it is time to check on your performance. First, did you go to all your classes and hand in all your assignments complete and on time? If not, why not? (There are few excuses that are acceptable. Don't deceive yourself thinking yours is.)

Next, look at your log and total up all the time you spent studying each subject. Look at your grades and compare them with your study log. Plot them on a chart or graph. Table 1 is Joe E. Bushey's study log and grades for a two-week period. (This is a sample case. The amount of time you will spend studying depends on your study habits, your ability to absorb the information, your current knowledge of the subject, and the amount of work required by the course. The basic analysis principles, however, remain the same.)

Graphs can show you information that might not be obvious in the raw data. A good graph in this case is a plot of grades versus time spent studying. Fig. 4 plots the data from Table 1.

Analyze the graph and data. Immediately you can see why Joe had trouble with math. He probably didn't put in enough time studying. This is just the tip of the iceberg of what this graph can tell him.

Fig. 4 shows a trend that Joe can take advantage of. (The following applies only to Joe. You must look at your data and graph for your personal trends.) To get a solid B, an 85, his figures show that he *probably* needs to spend about 3 h per week per subject (Fig. 4, point B). If he wants a solid A, a 95, he *probably* needs to spend about 5 h per subject per week (Fig. 4, point A). (I use the word "*probably*" because there are too many unknown variables. This is just a starting point to find problems and plan solutions.)

Joe must really like engineering science, because he spent 33% of his study time studying it. He either did not like or understand math, and it shows. He only spent 8% of his study time on it. To catch up and maintain a higher grade he needs to set aside additional study time for math.

When analyzing your log, look at how you use study time. Is your study time in good chunks or is it fragmented? Is it "quality" study time? One or two concentrated half-hour sessions are more effective than 6–12 5-min sessions scattered through the week. However, don't get caught in the trap of

TABLE 1. Results of Joe E. Bushey's Study Log

Course Title (1)	Summation of study log time (hr) (2)	Grade (3)	Study time (%) (4)
Physics	8.6	93	22
Chemistry	9.0	94	23
Humanities	6.4	87	16
Engineering Science	13.0	99	33
Math 101	3.0	65	8
Total <sup>a</sup>	40.0	—	—

<sup>a</sup>These hours were logged over a two-week period.

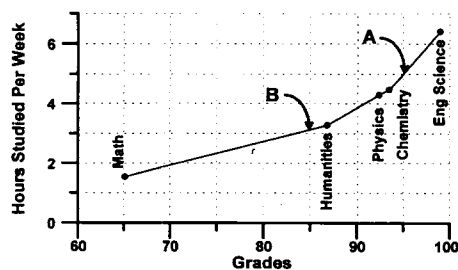


FIG. 4. Hours Studied versus Grades

trying to study for several hours straight without a break. No one can fully concentrate for long unbroken periods. Take a 5-min break now and then. When you return you will be able to concentrate better.

Look for concentrated chunks of study time in your good subjects and fragmented study time in your bad subjects. This indicates that you could be avoiding your bad subjects. Set aside some concentrated blocks of time; master the problem areas.

## Act

Now that you have analyzed your data, you must act on it. First, take care of the problem areas. Here are some ideas to try

- Schedule extra study time on courses with lower grades.
- Get a study group together with a tutor or someone who understands and can explain the subject.
- Do extra work in those courses with lower grades.
- Schedule one-on-one time with the instructor or an upperclass student for assistance.

Next, look at your goals. Overall are you pleased with your progress towards them? If you are, why? If not, why not? If your goal is to get an A in all classes, then schedule the required study time to ensure it. Use your graph to get an initial idea of how much time you need.

Now what do you do if your plot of grades looks like Fig. 5? How do you use the information? First, don't panic. On the plus side, you really understand engineering science. In fact, that A is almost a gift. You need to concentrate on math and discover why you are in trouble.

Remember, these data and graphs are your personal tool. You are analyzing them for your own benefit. Be brutally honest with yourself. Are you really studying math or just spinning your wheels? (This is the "quality" study time question again.)

Don't fall into the trap of using or believing one of these excuses

- The professor doesn't like me, and doesn't care.
- The professor is absolutely rotten, and just can't teach.
- Everybody hates this course and does badly in it.
- It is impossible for me to understand this course.
- It isn't an important course anyway.
- It's only an elective course.
- I can take it again next semester.

Next, look for help. Study groups, one-on-ones, and all the things mentioned before can help you. You are looking for illumination on the course, perhaps that one insight that makes everything fall into place. One of the best sources of information, besides the instructor, is a student who took and passed the class recently. Seek someone out and ask what he

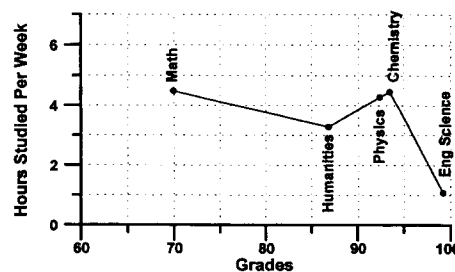


FIG. 5. Hours Studied versus Grades Illustrating a Potential Problem

or she did to make sense of the course. Above all else, don't give up. The answer is there. You just have to find it.

## PLAN

Finally, take what you decided to do in the action phase and modify your existing plan. Schedule extra study time, tutored sessions, one on ones, and so forth. Then do it, check it, act on what you find, and continue. Next semester, do it again. It should be a lot easier with the experience gained the first time around. The whole idea is to help you get better grades, learn more, become more efficient studying, enjoy the learning experience, and have more free time.

## SUMMARY

Adopt the new attitude.

- You are a professional in training.
- School is your job.

Set your goals and define success for each goal.

- Get your degree.
- Obtain marketable skills.
- Gain as much knowledge as possible.
- Have fun!

Use the Deming wheel.

- Plan, do, check, act.

## Plan

Use a professional work schedule.

- Set up a 40-h workweek.
- Start your workday at 8:00 a.m., finish at 4:30 p.m. or when your last class is over, whichever is later.

Go to all your classes.

Take copious notes during class.

Use your time effectively.

- Find empty classrooms or other places to use as an "office."
- Schedule your work during your weekday.
- Do your assignments as soon after class as possible and get ahead on assignments.

Log all your study time by subject.

- Log only real study time.

START NOW!

## Do

Put your plan in action.

- Work professionally, follow your plan and log your time.
- Go to all classes.
- Hand in assignments on time and in the requested format.

## Check

Periodically (every 2–3 weeks) analyze your performance.

- Have you gone to all your classes?
- Have you handed in assignments as required?
- Tally up your study log and look at your grades.
- Put some charts together to see the hidden information.

## Act

Review your charts and data.

Be brutally honest with yourself.

Decide what action you are going to take.

- Set up study groups.
- Set aside additional study time.
- Set up one-on-ones with the instructor.

## Plan

Modify your plan with the results from the act step.

## Continue Plan-Do-Check-Act Cycle

## CONCLUSION

These ideas are simple and can help you attain your goals. Ultimately, it is up to you. You have the knowledge, the ability, the talents, and the power to succeed in school. How you apply them is solely your responsibility.

## APPENDIX. REFERENCES

- Deming, W. E. (1982). *Out of the crisis*. Ctr. for Adv. Engrg. Study, Massachusetts Inst. of Technol., Cambridge, Mass.
- Peters, T. J., and Austin, N. K. (1985). *A passion for excellence*. Warner Books, New York, N.Y.