



# The Optimist

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## Smart Studying

### *Learning to Learn and Getting It Done!*

This issue is designed to help both adults and children maximize their learning potential and get things done, whether it be school or work-related projects. Preparation, organization skills, learning styles, and proven memory boosting techniques are all part of this equation. In some ways, this is a "Back to School" issue. In other ways, we hope to motivate you to take control of your workload to allow you to focus on those things you truly enjoy.

As curriculum standards increase, many parents and students are frustrated by the amount of time their children spend on homework each night. Children begin to feel overwhelmed. Homework becomes a time consuming hassle, a negative experience. At work, you likely feel similar emotions. Companies are trying to keep payroll costs down and profits up. Employee workloads are skyrocketing. One employee leaves and instead of replacing them, their workload gets distributed among the remaining employees. Many of us, our children included, feel caught in the age-old time trap...so much to do, so little time.

Just as adults manage their workload at the office, either efficiently or inefficiently, children must be taught to manage their homework. The following information can be applied at school, in the office, and at home. Some of it is obvious, but often overlooked. Many of the learning techniques described may be new to you. All of the information is relevant to life, as we know it.

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## Preparing Your Workspace

Right now, I am sitting on the couch with my laptop writing this article. My wife and mother-in-law are watching a popular reality show on television. I consider the appropriateness of my current work environment. I am frequently distracted by the pontification of the show's contestants and comments from my wife and mother-in-law. This is obviously not the best location for me to be formulating my thoughts, particularly on this topic. I am also aware that this is not much different than the environments most students study in. I frequently hear from students that they spend many hours per night doing homework. I often wonder how much of that time is actually spent doing work and how much is spent watching TV, listening to music, or browsing *My Space*. Distractions in any environment prohibit us from fully attending to the task at hand. It is not simply a focusing issue. While some may be better than others at "tuning out" distractions, all of us unwittingly fall prey to the most detrimental aspects of a less than ideal "thinking" environment. Why is this important? Distractions and disorganized study environments limit the type of

## INTERNET RESOURCES:

[www.idonline.com](http://www.idonline.com)

*LD Online –Great resource on learning disabilities and ADHD*

[www.bookadventure.com](http://www.bookadventure.com)

*Take Accelerated Reader tests online!*

[www.starfall.com](http://www.starfall.com)

*Great literacy resource for new and emergent readers*

[www.studybuddy.com](http://www.studybuddy.com)

*Free search engine for homework and study aids*

[www.learningplanet.com](http://www.learningplanet.com)

*All kinds of learning games and more!*

[www.scholastic.com](http://www.scholastic.com)

*Click on the "parents" tab to find all kinds of educational resources grouped by age*

[www.resourceroom.net](http://www.resourceroom.net)

*A variety of articles on reading, comprehension, spelling and math. Special sections for gifted and learning disabilities, as well as older learners*

memory that is essential to learning...*working memory!*

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## Working Memory

Working memory is our brain's scratch pad used to solve problems. It allows us to pull previously learned information that has been stored in long-term memory, and combine it with new information from our senses for the purpose of problem solving. For example, if I told you a list of letters and numbers mixed up (A 4 7 T 6 F), and then told you to repeat it to me, numbers first and then letters (4 7 6 A T F), you need to use working memory to do this. First, you need to take the string of characters and rehearse them in your mind. Second, you pull the concepts of letters and numbers from long-term memory and use them to identify the characters. Third, you use that information to reorder the characters just prior to saying them.

A good way of thinking about working memory is using the analogy of how a personal computer operates. The hard drive is like long-term memory; information is stored there for later use. The keyboard, mouse, microphone, camera, and disk drives are like the senses in that they allow information to come into the computer to be analyzed. RAM is like working memory in that this is the part of the computer in which information is taken from all other areas of the computer and used to accomplish the task or goal.

### Why is Working Memory Important to Studying?

Working memory is limited. It can hold only a certain amount of information for a limited amount of time. Also, working memory holds all information that is attended to (even if you are unaware of it), not just the information that you want to focus on. Therefore, the more information that is available in your environment that could be potentially attended to, the more valuable working memory space will be used up. Much like Spyware in the computer analogy, distractions cause your computer to work much more slowly and crash on a regular basis.

You've likely already deduced one major key to maximizing working memory is to decrease distractions. The goal is to decrease the assault on your senses so you can utilize the entire capacity of your working memory.

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## Controlling Distractions

### Visual Distractions

The number one thing you can do to decrease visual distractions while studying or working is to turn the TV off! Television programming is designed to be highly visually distracting. Frequent changes in high interest images result in dragging your eyes away from your work, often subconsciously. After the television is off, find an isolated place with very few items in view while you work. This means that your working area should be free of distractions. In other words, your desk should only have those items necessary for completing the task at hand. Yes, this does mean cleaning off your desk! A window with a view is nice when you are relaxing, but can be a big distraction while studying. A blank space, without posters or photos is the best location for working.

Children can be especially enticed by visual distractions. Be aware if your child has trouble concentrating or focusing on their homework. Look around to see the environment as they see it. Make adjustments to the room as needed.

<http://www.muskingum.edu/%7Ecal/database/>

*Check out the extensive learning strategies database by following this link!*

**"If the only tool you have is a hammer, you tend to see every problem as a nail."**

- Abraham Maslow

Additionally, you can utilize this same concept to increase your working memory! Post or prop "cheat sheets" so your child can reference the information they need to complete their work. If they are working on spelling words, post them upright to eliminate the need to scatter papers around frequently. Simplify the environment, but also don't overlook opportunities to enhance the area based on your child's specific learning needs.

## **Auditory Distractions**

Your TV is already off, right? Even if you are able to keep your eyes off of the TV, the noise coming from it rapidly depletes your working memory capacity. Is a soundproof room the ideal place to study? Luckily, no, the lack of any sound can be distracting as it is not typically part of anyone's natural environment. Instead, find ways to limit distracting sounds while allowing non-distracting white noise. First, study in a room closed off from activity in the house. Studying at the dining room or kitchen table is usually not conducive because they are often near the center of activity in most houses. An office or a bedroom, with the door closed, is usually your best option. However, in families with children, it may be difficult to help one child with homework in an isolated area, while still attending to the other children in the family. Do your best in these situations. Perhaps have the other child read or do a quiet activity nearby. Teach them that homework time is quiet time for the others. Be creative in coming up with ways to meet the needs of all of your children. Try to make it a family affair!

One of the best ways to decrease distracting noise is by introducing white noise into your study environment. This can be done by turning on a portable fan or by purchasing a white noise generator. If you find the drone of white noise a distraction, then choose music. However, make sure it does not have any lyrics. Lyrics activate the verbal centers of the brain, which you want to use only for the work at hand. Lyrics also give you something to think about, and can cause you to go off track easily. It doesn't matter whether you listen to classical music, jazz, or heavy metal, as long as there are no words!

## **Tactile Distractions**

Tactile distractions are one of the most overlooked types of distractions. These can include everything from your clothes, your chair, even the room temperature. If you are physically uncomfortable, your ability to concentrate is diminished. In the case of uncomfortable furniture, it will also add in the distraction of needing to get out of your seat more often. This could be critical when trying to motivate a young child! Also, keep in mind how long you have already sat in a given day. Be sure to provide ample time for physical activity prior to attempting to sit for another brain-based session. Wear loose fitting and comfortable clothing when studying, keep the room temperature comfortable, and sit at a desk with a comfortable chair. Get comfortable, but not so comfortable that you attempt to work in bed. Studying in your bed is a bad idea for two main reasons. First, you have spent most of your life associating your bed with sleeping. When you study in bed, your body wants to go to sleep (even if you are not tired). Even worse, you may break your body of the habit of wanting to sleep in your bed, inadvertently creating a pattern that could contribute to insomnia down the road.

## **Multi-tasking Myths**

"I'm an exception", you hear someone proudly declare. "I can multitask." Multitasking is a relatively new concept, coming into popular consciousness as personal computers became powerful enough to do more than one thing at a time. Not to be outdone, humans thought we should give it a try. We talk on

**"Upon the subject of education...I can only say that I view it as the most important subject which we as a people may be engaged in."**

- Abraham Lincoln

**"If there is anything that we wish to change in the child, we should first examine it and see whether it is not something that could better be changed in ourselves."**

- Carl Jung

cell phones while driving and eating a sandwich. The more we do, the less ability we have to attend to any one of the things we do. A recent episode of *Mythbusters* (Discovery Channel) did an experiment comparing driving performance of people who were legally intoxicated to those problem solving on the cell phone while driving. Both groups had equal driving performance. The brain is not designed to process related tasks simultaneously, it works best when it does one thing at a time. The more things you try to do, the worse your performance will be on each one. For more information on the myth of multitasking, check out the July 19, 2006 episode of *The Infinite Mind* at [www.lcmedia.com/mind436.htm](http://www.lcmedia.com/mind436.htm).

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## Effective Study and Learning Strategies

Now that you have designed the optimal study environment, it is time to put it to good use. While an appropriate workspace will greatly improve your studying efficiency, there are many approaches to learning, which will result in increased speed and retention in learning. Remember, we do not innately know how to study; it is a skill we learn. Some may not know what to study. Others may have difficulty remembering the information or have difficulty recalling the information. The remaining portion of this newsletter focuses on how to efficiently overcome these obstacles.

### Preview to Learn

Clearly, one of the obvious ways to increase study efficiency is to decrease the amount of studying you need to do for tests. This is best accomplished by maximizing your learning of information during classroom instruction and homework. Learning research clearly demonstrates that we are more likely to attend to, store, and recall information that is in some way familiar to us. When information is familiar, it is stored in long-term memory in such a way that it is linked to previously learned information. These links are called *associative networks*. Associative networks are similar to roads, leading to a destination. The more roads there are to a destination, the more ways we can get there. Likewise, the more associative networks there are to a memory, the more likely we are to recall the information. One of the best ways to increase our associative networks is through the use of *advanced organizers*.

Advanced organizers are a form of pre-studying, before the information is initially taught. By previewing information that will be taught in the near future, we create initial associative networks to that information. In a sense, we are priming our brain for learning the information. When the information is then taught formally, you have previous memories to create associative networks with. It looks familiar and is therefore easier to attend to and easier to encode in memory. Teaching this concept to children and teenagers allows them to determine the necessary steps for creating associative networks that work for them. Thus, you are providing them with a pathway to help them maximize their memory for life.

- *Preview Before Lectures*
- *Preview Before Reading Assignments*

Two common methods of using advanced organizers are previewing material before lectures and reviewing material before reading assignments. If you a syllabus that tells you exactly what reading will be covered in the upcoming class, read the chapters before the class. By reading the material prior to the class, the lecture will then become a review session. Instead of spending your time making notes to study from later, you will be better prepared to ask questions about concepts you did not understand during the reading. If you

“Learning is a treasure that will follow its owner everywhere.”

- Chinese Proverb

“We all need someone who inspires us to do better than we know how.”

- Anonymous

questions about concepts you did not understand during the reading. If you cannot find time to read or review in advance, at the very least scan the section headings and bold words in the reading material prior to the class. While this is not as effective as reading the entire chapter, you will still be familiar with the concepts when the lecture occurs. For parents of younger students, check out their teacher’s website or ask the teacher for help in obtaining the information needed for previewing.

When reading assigned material, do not start at go! Information in textbooks is often very dry and detailed. The organization of information may not be readily apparent. Have you ever read something and wondered where the author was going, what their point was? To increase your attention to important concepts and ideas, start at the end of the chapter! Many texts have lists of questions or key concepts at the end of the chapter. Read these, to see how much you already know about these concepts and also to tune into what is being deemed as the important points. If these lists are not present, usually the last section of a chapter in a textbook is a summary of the chapter; read this instead. By reading the material at the end of the chapter prior to reading the chapter, you have introduced key concepts into your memory. When you encounter these concepts again during the reading, they will be familiar. As a result, you will attend better to them and create more associations in memory for later recall.

## Organizing Your Workload

“By the time I get to my hardest homework, I am too tired to concentrate on it.” I hear this from so many of my school aged clients (and their parents!). This is primarily due to a lack of prioritization and planning in the way they approach their homework. A student will often do the relatively easy or low-stress homework first so that they feel like they have accomplished something. (Do you approach things this way?) By the time they get to the more challenging or high-stress work, they are worn out and have a difficult time concentrating. While the goal should be to complete all homework every day, the use of a **Homework Prioritization System** can insure that on those days when it may truly be impossible, the most important work will be completed. Additionally, this system ensures work that is most important to learning (and your grade) is completed during the time that you have the most energy and ability to concentrate.

The following is an example of a *Homework Priority Rating Scale* I developed. To use this scale, a student takes each entry in their agenda book and rates it on each of the following categories:

1. Time needed to complete the task
  - 1 - less than 15 minutes
  - 2 - 15 to 30 minutes
  - 3 - 30 minutes to an hour +
2. Time until due
  - 1 - More than one week
  - 2 - 2 days to one week
  - 3 - Due tomorrow
3. Level of concentration needed
  - 1 - Low
  - 2 - Medium
  - 3 - High
4. Percentage of grade
  - 1 - Very little
  - 2 - A good amount
  - 3 - A lot

**"Aim for success, not perfection. Never give up your right to be wrong, because then you will lose the ability to learn new things and move forward with your life. Remember that fear always lurks behind perfectionism."**

- David M. Burns

**"What I hear, I forget. What I see, I remember. What I do, I understand."**

- Confucius

5. Grade in class
  - 1 - A
  - 2 - B
  - 3 - C
6. How much do I want to do it?
  - 1 - I love to do this
  - 3 - I really don't care one way or the other
  - 5 - I really don't like doing it

For example, let's say a student has two homework assignments for the evening, a math worksheet and an essay for language arts. The math worksheet should take about 20 minutes to complete (2), is due tomorrow (3), requires a low level of concentration to complete (1), is a very small portion of the grade in the class (1), the student has a B in math (2), and the student doesn't really care about doing the assignment (3). In this example the overall rating for the math assignment is 12. The language arts essay, on the other hand, will take about an hour (3), is due in two days (2), requires a high level of concentration (3), is a large part of the overall grade in the class (3) in which the student has an A (1), and the student is really not looking forward to doing it (5). In this case, the language arts essay has a rating of 17. Since the rating for the language arts essay (17) is higher than the rating for the math worksheet (12), the student should complete the essay before starting the math. While this seems like a lot of planning, it only takes about two to three minutes to complete prior to starting homework, and can save a great deal of time in homework completion. If the essay is written when the student is fresh, it may take an hour. However, if they are exhausted, it may take two. This system can also be made quicker if the rating scale is taped to the inside cover of the student's assignment book. In this situation the student can provide a rating for the assignment at the time they write it in their agenda book.

## **Making Big Projects Smaller**

Planning for long-term projects is a common area of difficulty for many students and professionals. Often times a large task will be assigned with several weeks notice and is forgotten until the night before it is due. This appears to occur for one of two reasons: (1) underestimating the complexity of the task, or (2) avoidance of what appears to be an overwhelming task. The best way to address both of these concerns is through the use of task analysis. *Task analysis* is the act of taking a complex task and breaking it down into its most basic components. Once this has been done, each component can be considered an individual assignment and can be assigned a completion time so that the entire project is completed on time.

The following is an example of a project assigned for a book report:

*Assigned September 1<sup>st</sup>: Students are required to read one novel written in the early 20<sup>th</sup> century. They will write a report in which they provide a brief character description of each main character, in paragraph format. They will describe two character traits for each character, and support these descriptions with properly cited quotes from the text regarding the characters behavior, comments, or thoughts. This project will be due on October 1<sup>st</sup>.*

The following is a task analysis of the previous book report assignment:

1. Pick a book to read from an early 20<sup>th</sup> century author - by September 2<sup>nd</sup>.
2. Read entire book - by September 9<sup>th</sup>.
3. Write quotes for main characters (with page numbers) that

**"Do not train children to learning by force and harshness, but direct them to it by what amuses their minds, so that you may be better able to discover with accuracy the peculiar bent of the genius of each."**

**- Plato**

**"They may forget what you said, but they will never forget how you made them feel."**

**- Anonymous**

- support character traits in notebook while reading – by September 9<sup>th</sup>.
4. Outline character descriptions for each main character – by September 16<sup>th</sup>.
5. Write first draft of character descriptions – by September 23<sup>rd</sup>.
6. Write citations for quotes – by September 25<sup>th</sup>.
7. Proofread draft and citations – by September 27<sup>th</sup>.
8. Write final copy of report with final edits – by September 30<sup>th</sup>.

This approach is effective for both types of avoidance. For students who underestimate the complexity of a task, this approach requires them to list the specifics of the tasks and plan for time of completion. They are forced to consider the complexity of the task well before the due date. For the student who feels overwhelmed by the task, this approach allows them to break a large task down into several smaller and more manageable tasks with individual deadlines for completion.

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## Studying for Tests

People often state that they do not know "how to study for a test". Studying is another one of those skills that most educators assume you have learned through some form of divine intervention, yet direct instruction on how to study for tests and quizzes is rarely part of the curriculum at any age. The question of *how* to study for a test is less important than knowing *what* to study for a test, or more importantly *what not* to study for a test. The most common approach to studying is studying all the information that is expected to be included. This is an inefficient approach to studying. One way to look at this is to ask yourself this question: "If I took the test right now, before studying, what percentage of the questions could I expect to get correct?" Most people answer somewhere between 20% and 70%. Using the *studying everything* approach, you likely spend 20% to 70% more time than is necessary. Another possible drawback of this approach is based in the way that information is encoded into long-term memory. When you try to memorize too much information at one time, you increase your chances of falling prey to *retroactive interference*. Retroactive interference is when information you have just learned interferes with information you learned just prior. This is not to say that you do not need to study what you already know at all, just that a greater emphasis should be placed on learning that which you do not know. It's all about prioritization.

### Pre-testing

How do you determine what you know and what you do not know? By testing yourself before you begin to study. This approach is quite easy when your teacher provides you with a study guide, or when the textbook has sample questions at the end of chapters. However, when these do not exist, spend some time up front and be creative in developing your own pretest. Pre-testing also aids in reducing test-taking anxieties.

Let's illustrate by studying for a vocabulary test. If there are 30 words on the vocabulary test, start by trying to write the definitions for all 30 from memory. Next, score this pretest and study the vocabulary words that you missed. Test yourself on the ones you just studied (the ones missed on the first pretest) and then repeat the process to study the words you miss on this second test. Continue this process until you have no more words to study. At this point, you have put in the greatest amount of time on memorizing the words you knew the least, and the least amount of time on the words you knew the best. Finally, retest yourself on all 30 words. If you miss any, repeat the process

"Live as if you were to die tomorrow. Learn as if you were to live forever."

- Gandhi

樂觀主義

### optimism

A tendency to expect the best possible outcome or dwell on the most hopeful aspects of a situation.

until you get 30 out of 30 correct. On the outset, this may seem like a lot of work, but remember that each time you retest yourself, your list will be smaller and smaller, and will take less and less time. When you finish this process, you can be confident that you are capable of getting a 100% score on the test.

## Primacy-Recency Effect

Take frequent breaks while studying! By taking a break every 20 minutes, you increase your retention of the information you are studying due to the *primacy-recency effect*. The primacy-recency effect is the idea that the information you study first is most memorable, that which you study last is second most memorable, and everything in the middle is the least memorable. When you study for longer sessions, you have longer periods of down time -when information is not encoded into long-term memory as efficiently. Research has shown that if you study for one 40-minute session, you will have 10 minutes of 'down time' during which information is not stored efficiently. However, if you break the 40 minutes into two 20-minute sessions, you will have approximately 2 minutes of 'down time' during each of the 20-minute sessions. This will result in an extra 6 minutes of efficient learning over the 40-minute period! Simple, but effective!

## Retroactive Interference

Earlier, I mentioned the concept of *retroactive interference*, in which information you have just learned interferes with information you learned previously. There are a number of ways to decrease retroactive interference with memory when studying for tests. First, if you have other school related work to complete, do it before studying for the test. If you study for a vocabulary test and then spend several hours reading about psychology, it is likely the information you learned from the psychology text will interfere with the vocabulary words you studied and make them harder to recall. Schoolwork is not the only thing that can create retroactive interference. Watching television, talking on the phone, or reading a magazine can have the same effect. As a result, you may want to make studying for a test the last thing you do before you go to sleep at night. By doing this, you are not allowing any new information to interfere with what you have studied as you do not learn while you are sleeping.

## Using Visual Memory

While it is always best to understand the concepts behind what you are studying (remember those associative networks? this creates more of them), sometimes brute-force memorization is the only way to study for certain types of tests. When this is the case, fall back on the cliché "A picture is worth a thousand words." Try this experiment: think of 15 random numbers and try to remember them in order for more than 5 minutes. You can say them over and over again, but the chances are you will not remember them for more than a few minutes. That is because you are using auditory memory (memory for spoken items) to learn the information. Short-term auditory memory is capable of holding 5 to 9 items in it for rehearsal. 15 verbal items is likely to overwhelm its capacity. Now, try to name 15 random items that are on your bathroom counter. My guess is that you found this task much easier. Chances are that when you came up with the list of 15 items, you visualized your bathroom counter and looked around for items in your mind. This experiment demonstrates the near limitless capacity of visual memory. Another example is trying to remember what your room looked like when you were 10 years old and then trying to remember your phone number at that time. The room is probably clear in your memory, even though the phone number has long since faded.

How can you capitalize on visual memory for memorization of new information? Create vivid visual images that represent what you are trying to learn. For example, if your goal is to remember that Thomas Jefferson wrote the Declaration of Independence you would create a mental image of a nickel (with Jefferson on the front) screaming (declaring) the word 'INDEPENDENCE' in large type. Make sure the picture of the nickel is in color in your mind and that the nickel is very shiny. Also, have many lines coming from the mouth on the head of Jefferson surrounding the word 'INDEPENDENCE', indicating shouting. The more bizarre, strange, colorful, action-oriented, and detailed the image, the more memorable it will be.

## Using 'Cheat Sheets'

As you study, pretend that you will be allowed to take one 8.5 x 11 sheet of paper into the exam with any information on it that you can fit into that space. Each time you come across information that you think you will have a hard time remembering, write it on the cheat sheet. Carry the cheat sheet around with you and read it over whenever you have a spare second. When test time comes, and the cheat sheet is not available to you, chances are you will be able to call up a mental image of the page and see most of the information you wrote on it earlier.

There are a myriad of methods out there for studying. Since this is a newsletter, I have highlighted what I believe to be the most effective and easiest techniques to implement. Hopefully, you will try some of these methods and find immediate improvement in your study skills. Please let me know how they work for you! I hope you all have an enjoyable and successful school year.



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