"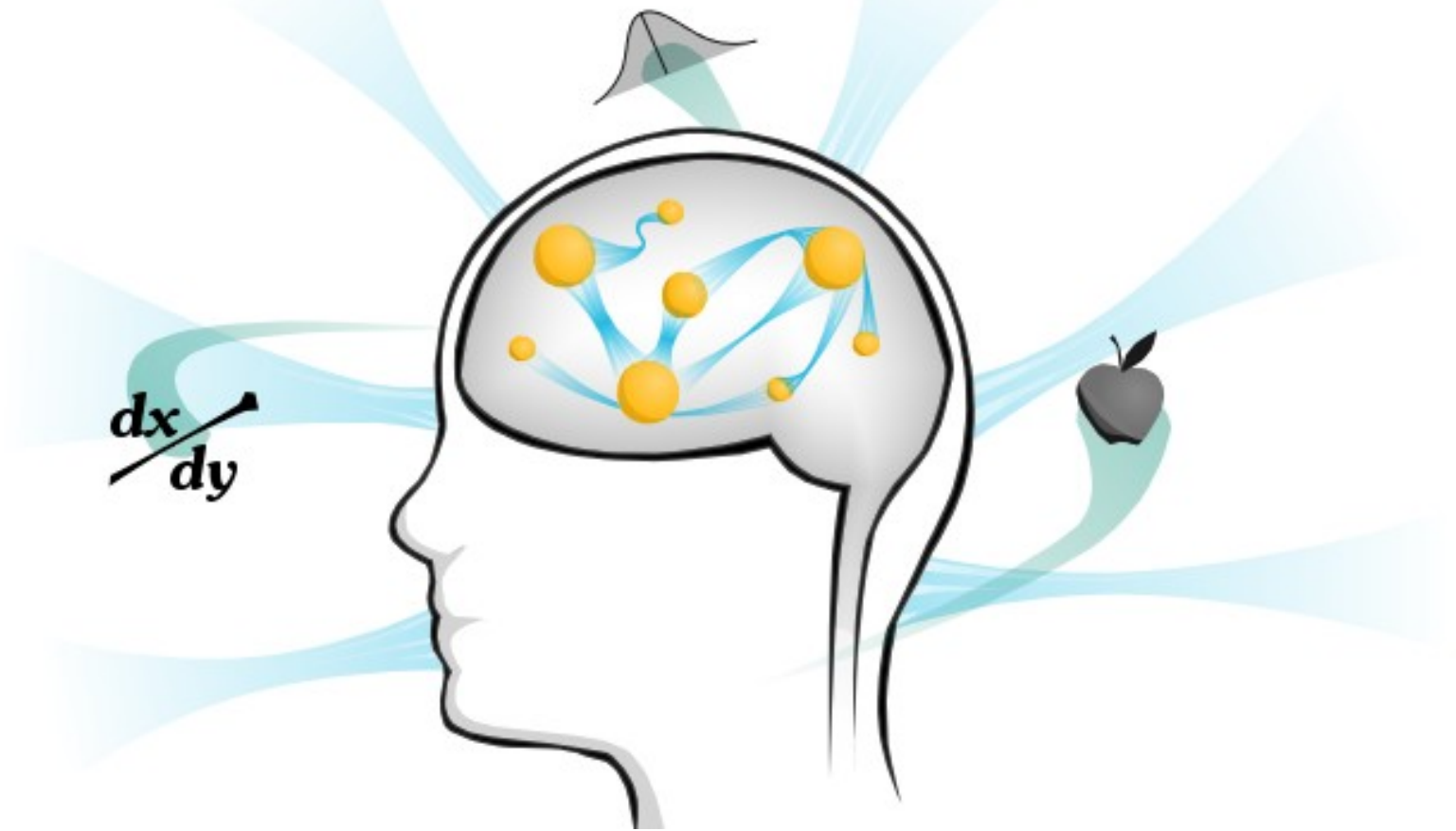If you understand something in only one way, then you don't really understand it at all. The secret of what anything means to us depends on how we've connected it to all other things we know. Well-connected representations let you turn ideas around in your mind, to envision things from many perspectives until you find one that works for you. And that's what we mean by thinking!"

-Marvin Minsky

What's Inside the Free Preview?

Thanks for downloading the free preview version of *Learn More, Study Less.* Although the preview version is 200 pages shorter than the full version, I've packed in a few great ideas to help get you started. The preview version covers three chapter from the full book:

- Introduction to Holistic Learning – What is holistic learning?
- Flow-Based Notetaking – A tool to learn faster in classes.
- Nuke Procrastination – Learn the W/D Goals system as a way to squash procrastination once and for all.

In the Table of Contents, I've greyed-out sections not included in the preview version. This should give you an idea of the sheer volume of great ideas I've packed into the full program.

Table of Contents

Part III: Beyond Holistic Learning

Part IV: Summary & Quick Guide

My Story

I've always been able to learn quickly. Getting A's and A+'s with little studying before tests wasn't a challenge for me throughout school. While in University, I've maintained an average that sits between A and A+. Despite this, I don't spend more than the average person on homework. In fact, I might even spend less.

Once, I wrote an inter-provincial test (I'm Canadian) for chemistry. The only problem: I didn't know I was supposed to write the test until a pencil and bubble sheet were sitting in front of me. On top of this, the test was on material I wasn't familiar with and topics that were never covered in my class. I was given an hour and a half to write the exam. I left after forty minutes because I wanted to eat lunch.

I won first place and received a check for $400.

Self-learning has also occupied my time. I've taught myself several programming languages, business and writing skills and my bookshelf has hundreds of books I've read

in just the past two years. I've also dabbled in graphic design, musical composition and anything I could get my hands on.

Learning has always come easily to me.

Up until this point, I'd just be another smart kid. "Gifted" might fit as well, although there are people whose mental feats would put my small achievements to shame. I'd be just another kid who got a more favorable genetic cocktail, had pushy parents or some sort of glandular accident.

And if you read this far, you could probably slap on arrogant and boastful.

Until recently I probably would have agreed with you. But then something strange happened. I began to notice something different about myself and people even smarter than me. It wasn't just that smart people learned better or faster.

They learned *differently*.

Smarts requires a different strategy. Smart people had picked up different tactics,

sometimes intentionally but usually completely without awareness of them. It was these different strategies that made the difference in understanding.

That different strategy I called **holistic learning**. I call it holistic learning because it challenges you to view learning as a comprehensive whole, instead of a list of memorized facts. Smart people tend to make fewer distinctions between branches of knowledge and can easily relate one set of understandings to another.

By learning holistically, smart people are able to quickly integrate new information. More importantly, this information sticks. They actually "get" the concepts and see how the concepts relate to far more than just the problems given.

Once I was told a story that demonstrates this point perfectly:

Once upon a time, a student was in a physics class. He had achieved an otherwise perfect score, but the marker had graded him poorly on one question. The question had asked him how he would measure the height of a building using a barometer.

The student had written down, "Go to the top of the building. Drop the barometer and count the seconds until it smashes on the sidewalk below. Then use the formula for

acceleration by gravity to determine the height of the building."

Of course, having referenced a barometer, the tester expected the student to use air pressure as a tool for measuring height. Since this answer did not demonstrate that the student knew how to solve questions about air pressure, he couldn't pass that portion of the test.
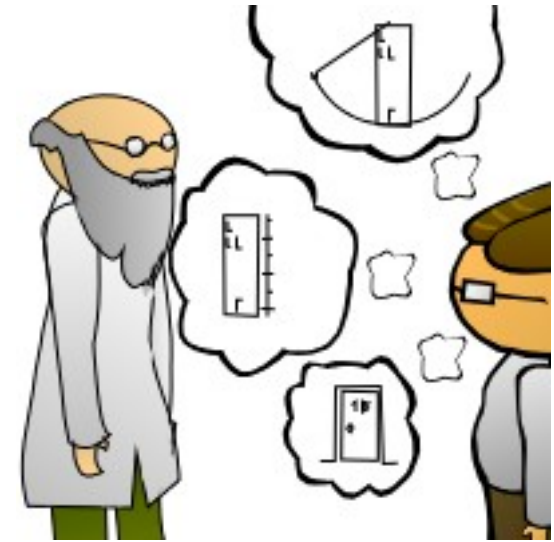
When the student brought up that his answer did solve the question being asked, the professor made a compromise. He said that he would let the student answer the question again with a different method. And if the student solved the problem again, he would award him the marks for the question.

Immediately the student responded that he would use the barometer to bang on the door of the landlord in the building. When the landlord answered the door, he would ask, "How tall is this building?"

At once, the professor saw what the student was doing. He asked him if he knew of any other methods to reach the answer. The student said that he did.

He recommended tying a long string to the barometer and measuring the length of the string. Or swinging the string as a pendulum and inferring the height by the motion it created.

The professor decided to award the student the marks. As the story goes, the student was a young Niels Bohr, later becoming the famous physicist and discovering the nature of electrons inside atoms.

This student didn't just know how to get the answer. He also understood the entire scope for which the problem existed. Instead of seeing the problem in the same terms he had been taught, he could easily view it a number of ways.

The goal of holistic learning is to replicate this process with the information you want to learn.

What is Holistic Learning?

Holistic learning is the *opposite* of **rote memorization**.

Rote memorization involves repeating information enough times with the hopes that it will stick. Trying to remember a physics formula by repeating it to yourself dozens of times is learning by rote. This also a poor way to learn.

If you read the story about the student from the last section, you can probably see that smart people don't learn by rote. Do you think Niels Borh, as a young physics student, had formulas memorized in his head? Coming up with so many unique ways to solve a physics problem, it was the opposite. He understood what every symbol in the formula meant, and knew why it was there. He knew the rules so he knew how to break them.

Holistic learning is a theory for learning that more accurately describes how your brain works. Your brain isn't the same as a computer filing system. Computer files are stored in strips of 1's and 0's in locations on a hard drive. Your brain stores information

as associations between billions of neurons.

Rote memorization might work if we had computer brains. All it would take is an accurate copy of information and you could memorize anything. Unfortunately, we don't have computer brains and that is why rote memorization is a less effective way to learn.

Holistic learning takes a different approach. Instead of trying to memorize information by making a perfect copy in your brain, it uses the web of neurons you have. Holistic learning creates webs of information. One idea relates to another idea. That interrelating of ideas allows you to easily navigate through complete understandings.

With holistic learning, ideas aren't learned in isolation. If you follow holistic learning closely enough, you'll soon realize that it is impossible to learn an idea in isolation. Learning anything requires associations. The more associations you can create and the stronger those associations are, the better.

Rote memorization would suggest learning fits into neat little boxes. A box for math containing algebra, arithmetic and calculus. Your calculus box contains more
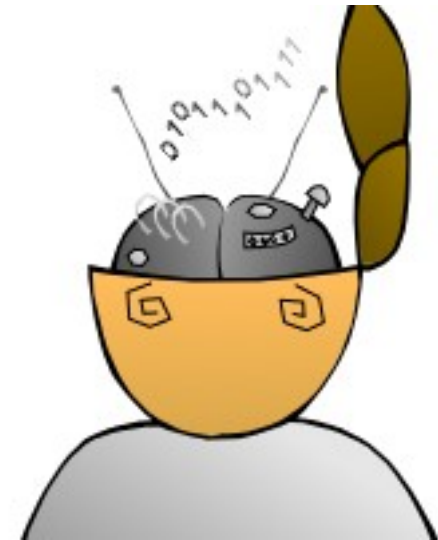
boxes for how to find the derivative of a function, and a few common applications of those rules. Nowhere does your calculus box contain information on biology, history or the plot of a science fiction movie.

But learning doesn't fit into boxes. Learning fits into webs.

A holistic learner wouldn't take such an organized approach to storing information (which might explain why so many smart people have horrible organization skills). Instead holistic learners connect everything. A derivative isn't just a formula, it's a feeling, an image and you can relate it to flying a supersonic jet.
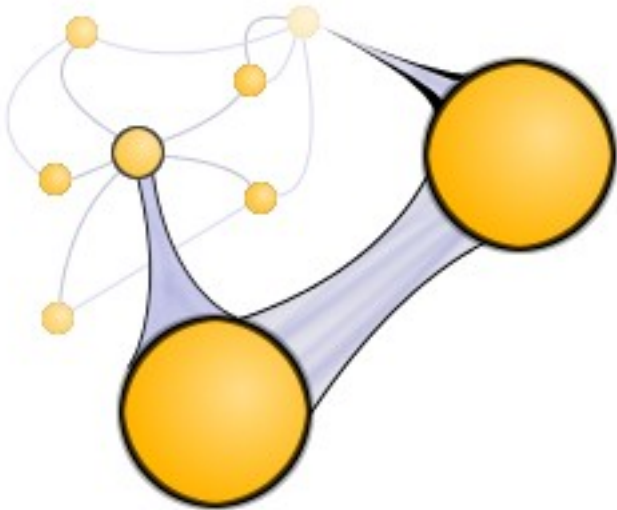
Rote memorization seems to make sense when you can't see the alternative. When you don't know the steps learning should follow and lack techniques to move through those steps, simply pounding information in your skull seems to work. This is like a caveman using a rock to hunt mammoths instead of a rifle. Until you understand the steps and techniques for learning, rote memorization is

crude and inefficient, but it still works better than nothing.

How You Store Information

Holistic learning is my hypothesis for how learning actually works. I say hypothesis because holistic learning is less scientific fact and more practical metaphor. Science still has a long way to go to discover the physical connections in the mind. Holistic learning simply suggests one way of viewing how smart people manage to learn. Whether electrons actually exist as billiard balls or violin strings jumping around a cloud of protons is less important than the implications of these metaphors. Holistic learning, similarly, is about providing an easily accessible theory that seems to fit how information is stored, rather than a description of the biological processes buried in your mind.

Holistic learning is based on three main ideas:

1) Constructs
2) Models
3) Highways

As I'll explain, seeing how these three elements fit together makes applying the holistic learning strategy easier. Just as knowing the different chess plays is useless without knowing that a bishop moves diagonally, knowing the holistic learning strategy is useless unless we both operate from the same points of reference.

This ends the preview section on holistic learning. In the full-version I explain what constructs, models and highways are. I'll also explain the 6 stages of holistic learning, the 5 information structures and how you can use these to learn faster.

...now let's look at a great technique for holistic learning, Flow-Based Notetaking.

Flow-Based Notetaking

Flow-Based Notetaking

I'm not a fan of taking detailed and intricate notes. I'm a believer in the "learn it once" principle, which means you should be listening and processing the information as your instructor is teaching–not just transcribing it on a piece of paper to learn later.

One technique I use during classes where there is a lot of information is flow-based notetaking. The goal with flow-based notetaking is providing a surface for connecting and linking ideas as they are reaching you. The linear, bullet-point style of notes that most people use is replaced with a much more fluid (although messier) format.

With flow-based note-taking you start by only writing out the major ideas. This means using a few words at most instead of entire sentences. This can reduce readability later, but it enhances learning during the lecture. Facts, dates, details and descriptions are reduced to just a few words, not lengthy paragraphs.

Once you get an idea written down, your next step is drawing a few arrows to connect it to other ideas. Instead of an ordered hierarchy of ideas, you want to represent the ideas as being interrelated components. This process more closely mirrors the actual holistic learning strategy, where ideas are linked into a web.

I tend to use flow-based notetaking as a method for using other techniques as well. Metaphor, diagraming and information compression are methods that can be used in conjunction with flow-based notetaking to enhance your understanding. This way you can write out major ideas and connect them to small pictures, diagrams or references to other subjects.

Remember that notes are only an intermediate step towards understanding. Having a beautiful set of perfectly written notes is useless if you don't understand the subject you are trying to learn. Flow-based notetaking, therefore is messier approach to taking notes, but one I believe is more effective at helping to understand the material.

Connect with quick diagrams

Use arrows to connect ideas

Flow-Based Notetaking Example
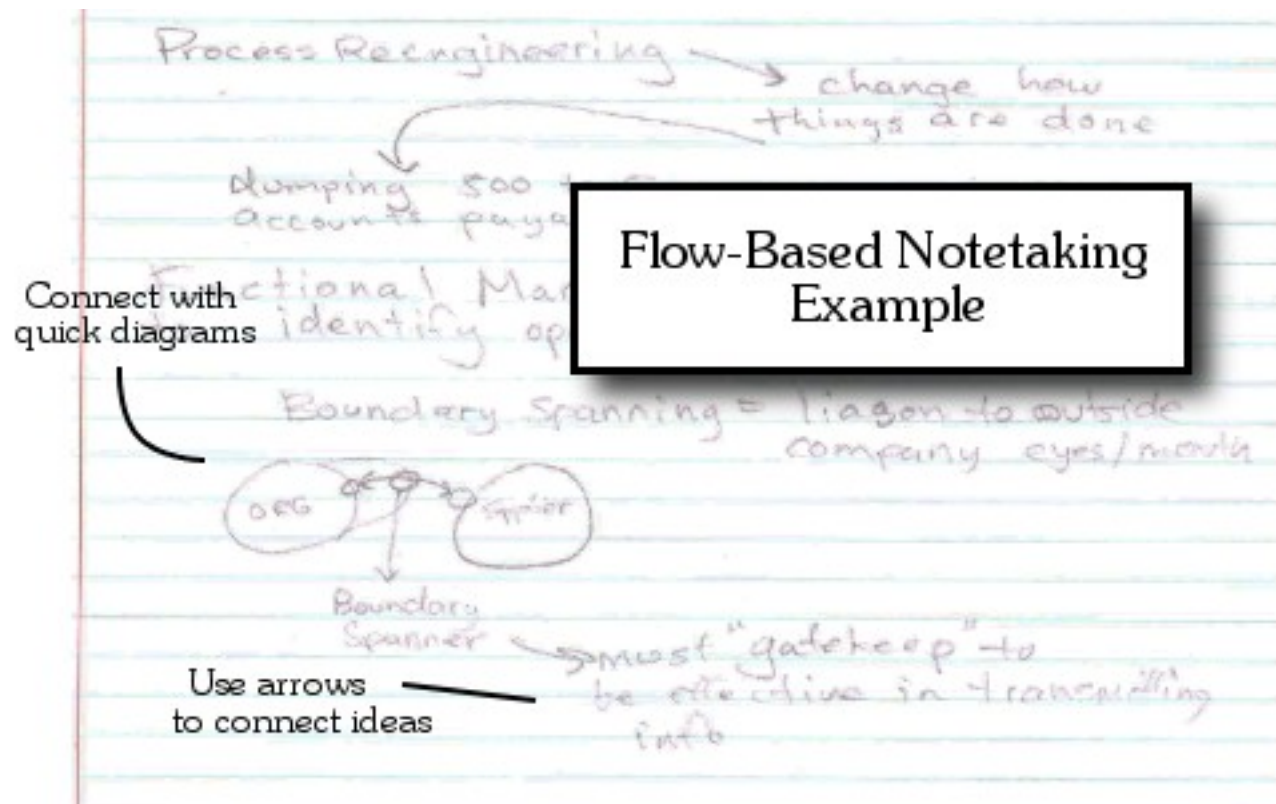
Shadow Price

Every Model has both

Primal & Dual

Link Ideas to Images

gives results in terms of the amount of profit gained

gives resuts in terms of the value of constrained resources used to earn profit

Break Down Long Explanations Into Simple Diagrams

MOH balance

Canonical Form

when maximizing

when minimizing

all $\leq$

$\geq$

① Go straight to COGS → Easy, but inaccurate → Use when balance isn't significant

② Apply to accounts based on ending balances

EVEN BETTER (most accurate)
③ Apply to accounts based on the actual MOH used in each remaining account.

FG   WIP   COGS
a   b   c

MOH (based on proportion)

$Z_{max} = 160x_1 + 200x_2$

subject to...

$2x_1 + 4x_2 \leq 40$

$18x_1 + 18x_2 \leq 216$

$24x_1 + 12x_2 \leq 240$

$Z_{min}\ 40y_1 + 216y_2 + 240y_3$

$2y_1 + 18y_2 + 24y_3 \geq 160$

$4y_1 + 18y_2 + 12y_3 \geq 200$

Primal and Canonical

dual variables

Dual (and canonical)

Link Ideas With Arrows
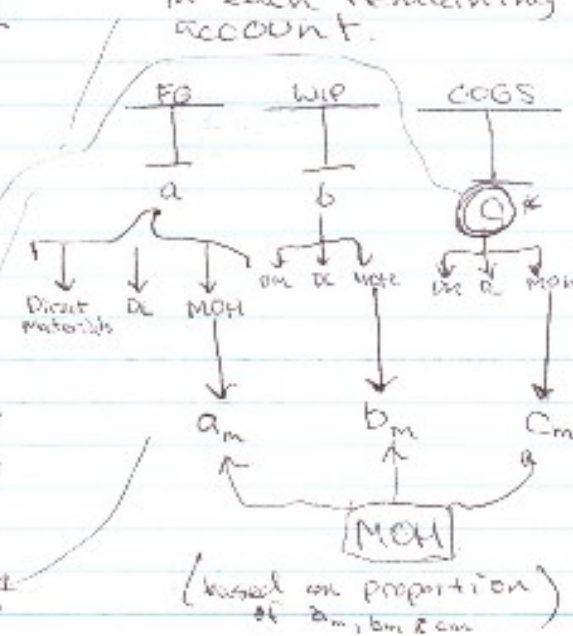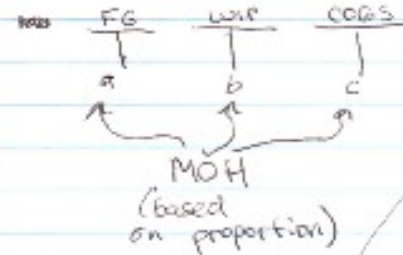
Remember not to include jobs that were manufactured in past periods

requires going into individual jobs

good when ratios of on:direct vary from job to job

FG   WIP   COGS
a   b   C

DM DL MOH   DM DL MOH

Direct Materials   DL   MOH

a_m b_m C_m

MOH (based on proportion of a_m, b_m & c_m)

Hybrid Flow-Based Notetaking

Flow-based notetaking involves a trade-off between recording and exploration. With regular, linear notetaking, you can create an almost perfect record of what was said in a class. This method is useful if you need to review that information multiple times in order to learn it properly.

With flow-based notetaking you are sacrificing some later readability, for current understanding. By reducing the content of your notes and adding links or diagrams, the material can be learned more holistically. However, if the class has a high information density or you plan to review notes thoroughly later, there are hybrid strategies you can pursue.

Flow-Based Afternotes

The first hybrid strategy for flow-based notetaking is to take regular notes first and then recopy them into a flow-based format. If you are having trouble keeping up with the pace in a class, this strategy can give you more time to properly digest the information. Although it takes longer than a purely flow-based or linear notetaking style, it gives both readability and understanding.

I suggest starting with flow-based afternotes for the first month of trying this new notetaking style. This will ensure that you have a copy of your clearly organized notes in case you need to study them later.

Flow-Based Commenting

Some classes have an extremely high information density. When you are writing frantically just to get everything on paper, flow-based notetaking is almost impossible. Flow-based notetaking assumes that you can record all the critical information in a class in less time than it takes to teach. Most good teachers will give plenty explanation room and examples. During that time you can create the connections, metaphors and diagrams you need to learn holistically.

However, in cases when information density goes faster than you can record, flow-based commenting is an alternative strategy. Basically it involves writing down the key information and inserting links into your notes when there is a break. If a professor puts up a few dozen formulas you need to record, you could write all these down first. Following that, you could add more connections when the professor starts giving examples of how the formulas are used.

Recognizing Critical Information

The key ability with flow-based notetaking is to know what is important. What is the core information taught here? If you write down everything said in a lecture with equal emphasis, then you'll spend your entire class transcribing instead of thinking. Instinctively writing down every word written on an overhead transparency or Powerpoint slide is useless if you don't actually think about what you are writing.

With flow-based notetaking I cut down the amount of information I transcribe and emphasize on connecting and sorting that information in a way I understand.

This ends the techniques section in the preview of *Learn More, Study Less*. In the full version, over a dozen more techniques are discussed over 10 new chapters. Speed reading, metaphor, information compression and model debugging are just a few of the ideas covered.

...now let's look at a tip for defeating procrastination.

The Productive Student

Productivity Tip #3
Nuke Procrastination

If an assignment is due next Wednesday are you the type of person who starts working on it:

(A) As soon as it is assigned.
(B) All in one session, some time between today and the due date.
(C) Tuesday night.
(D) Wednesday morning, *ten minutes before class!*

Unfortunately, most students I know would have to pick either C or D. Which is the best answer? It may surprise you that I don't believe answering A is ideal either. As I'll explain, beating procrastination doesn't mean just completing work earlier.

The correct answer (in most cases) would actually be B. Completing an assignment in one go saves time by batching. In addition, if you complete the assignment using the Weekly/Daily Goals method, you can save yourself the stress and guilt of deciding when to do assignments.

Weekly/Daily Goals System

The W/D Goals method is one of the best ways I know of to combat procrastination. The idea is simple:

1) At the end of each week, compile a list of all the assignments, homework, reading and studying activities you want to do in the following week.

Unless something unexpected arises during the week, you are obligated to finish this list–but no more than this list. This splits off the endless amount of assignments and work you could be doing into a manageable chunk of one week. If you have a particularly busy week, you might hold-off on long-term assignments. If you have a lighter week, you might get ahead on reading for tests far before the date.

2) At the end of each day, check your weekly to-do and create a daily goals list.

The next step is to break down your weekly work over each day. That's six days of work (assuming you're taking a rest day). You're obligated to finish this list each day, but no more than this list.

What does the W/D Goals system accomplish?

1) It **saves you the stress** of deciding whether to work more or less on a day. You just check your list to see whether you're done.

2) It **keeps you from procrastinating** on big projects. By relying on your weekly and daily goals lists, instead of due dates, you are the one in control over your schedule.

3) It **helps you balance workloads**. By looking ahead at your schedule you can adapt your weekly and daily goals to smooth over your work. Instead of pulling all-nighters before a test, and wasting hours of your time three weeks before, you can split up the work.

Here is a sample of the weekly/daily goals lists I maintain:

Weekly Goals: Feb 4 - Feb 10

- ☐ Weekly Blog Work
- ☐ PTB Article
- ☐ "Flex" Article
- ☐ Backup Website
- ☐ Read Thursday's ENT Case
- ☐ Read Next Tuesday's ENT Case
- ☐ Write Extra LMSL Chapters: "Not

Daily Goals - Feb 5, 2008

- ☐ Classes
- ☐ Gym
- ☐ TM - Speech
- ☐ Read Accounting Ch 5
- ☐ Read Accounting Ch 6
- ☐ Read Thursday's ENT Case
- ☐ Comp Lab @ 11:30

I use TadaList, which is an online to-do list program for storing my lists. Checking my Daily Goals regularly and my Weekly Goals each night, helps me stay on track.

Get the Entire Book Today!

Thanks for reading the free version of Learn More, Study Less. Even if you don't buy the full version, I hope you find the techniques in the preview helpful. Here are just a few of the ideas only available in the full version:

- Constructs, models, highways and the 6 phases of holistic learning.
- Linking, pegging, metaphor, visceralization, and active reading techniques.
- Batching, energy management and why you shouldn't "study".
- Self-education and how to get access to university courses for free.
- ...and much more!

Over 200 pages and 6 bonus documents for only 39.95!