Study, Are You Up For It?

How Do You Study? A Check-Off List

- I read the text before lecture
- I read the text after lecture
- I read the text over and over
- I do the practice problems at the end of the chapter
- I do flash cards
- If available I always use the textbook's website
- I hate to read (a check here ➔ check out of college)
- I like to study with the book closed
Your Own Study

What is the Goal? Building Knowledge in Myself

My Study: Is it efficient? Does it result in A's?

Can I remember material from last semester's courses?

Especially prerequisite courses that are required before registration to upper level courses. Success in these courses ACTUALLY depends on my knowledge and problem solving ability of the prerequisite courses.

Does my study result in shallow knowledge or deep knowledge?

HAS ANYONE BOthered To STUDY EFFECTIVE LEARNING? How to get to 100%

The Study of Studying

Experimental Setup: 4 Groups of Students (Purdue University and Washington University) study 40 Swahili/English word pairs with eight rounds of study/testing.

Group Study/Test Modality
ST Study all words, Test all words.
SN, Tn Study only pairs missed on previous Test, Test all words.
ST, N Test all words, Test only missed words on previous test.
SN, TN Study only pairs missed on previous Test, Test only words missed on the previous Test.

Tests given after study session interrupted by a short “distracter task” verifying multiplication problems.

The Learning Curve

1. Learning enhanced by repeated intervals of studying and testing.
2. No significant difference in Study Modality for learning curve.
3. Four study/test sessions were required to get to 100%
4. No difference in the speed of learning, but what about the speed of forgetting?

Longer Term Memory Greatly Affected by Study Modality = Recall Is The Most Important!

Test Results *a Week after* Study/Testing.

1. Repeated Testing All Words increases Longer Term Learning.
2. Studying missed words works as long as Testing All was used.
3. The difference between short term (shallow) memory and longer term (deep) memory are significant
Testing is Really Studying with the Book Closed

1. Many instructors know that they actually LEARN from testing – just consider the energy flow in a person taking an exam!

2. Testing is really a form of accountability: does the mind know what it has studied?

3. This form of “accountability” can be accomplished at textbook websites with practice tests (as long as they are done with the book closed), end of chapter problem sets or other serious self tests.

4. Accountable study sets the student up to be a better problem solver as well as removing exam anxiety.

Study Takes Time and Energy

TIME: everyone says study more. But that can be unproductive by itself UNLESS study uses testing (recall).

ENERGY: has anyone studied the brain using energy?

Get Ready for Positron Emission Tomography (PET).
Positron Emission Tomography

Left panel – CT scan.
Middle panel - PET scan
dark colors higher glucose use.
Middle panel - panel PET scan superimposed on CT scan with false colors (green→red) increasing glucose utilization

Brain is normal and using glucose as fast as liver-spine cancer (malignant melanoma).

Brain Uses Energy

Starvation
Ketone bodies

Normal diet
Glucose

CO₂

ADP + P₁

ATP

Learning requires Brain Activity

Electrogenic transport by Na⁺K⁺ ATPase
PET Brain Scans - Rate of Glucose Use

Rested (a)

Sleep Deprived (b)

Accountable Study can not be done the "Night Before" the exam

<table>
<thead>
<tr>
<th>Bloom's Taxonomy</th>
<th>Learning Skill</th>
<th>Question stems…</th>
</tr>
</thead>
<tbody>
<tr>
<td>KNOWLEDGE</td>
<td>memorization and recall</td>
<td>What is….? Who, what, when, where, how, describe…?</td>
</tr>
<tr>
<td>COMPREHENSION</td>
<td>understanding</td>
<td>What would happen if…? What does.. illustrate about…? What is analogous to….?</td>
</tr>
<tr>
<td>APPLICATION</td>
<td>using knowledge</td>
<td>How could…be used to…? What is another example of…?</td>
</tr>
<tr>
<td>ANALYSIS</td>
<td>taking apart information</td>
<td>How does…affect…? What are differences…similarities…?</td>
</tr>
<tr>
<td>SYNTHESIS</td>
<td>reorganizing information</td>
<td>What is the solution of…..? Create or design a new….?</td>
</tr>
<tr>
<td>EVALUATION</td>
<td>making judgments</td>
<td>Why is….important? What is best for….? Do you agree/disagree that…?</td>
</tr>
</tbody>
</table>
Building Knowledge in You is Like Building a Car

Car manufacturers test and test and test some more before the submit cars to the ultimate test = being driven by the public.

They build cars and want them to be perfect.

You are building knowledge that you can use over and over. Do you want just enough to get by, or get the best possible grade and walk away from FIU with useful knowledge?

Consider this:
Do you want to be operated on by a physician that “got by” courses or really knows the material?

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Now, How are you going to Study?

1. Check your schedule - Work out WHEN you can Study.

2. Pencil in times for Group Study, Individual Study (keep in mind: you take the test, not the group).

3. ACCOUNTABILITY is only important to YOU.

4. If you planned your time well and studied early and often with the BOOK CLOSED…you can walk into an exam with a rested, active brain and with CONFIDENCE that your knowledge will produce accurate and thoughtful answers to the exam.

GO FOR IT !!!