

## **Test-Taking Advice**

### **Especially for the Multiple-Choice Challenged**

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#### **Introduction**

Many students believe that they are severely disadvantaged when it comes to performing well on multiple choice (MC) questions. Indeed, one recent student, who had obtained 55% on the MC section of a quiz in Psyc 331, earned 97% on the written part--clearly something was wrong! With increasing pressure for high GPAs to gain entry into crowded programmes, difficulty answering MC questions can be a true handicap with very heavy implications for later career development (e.g., the MCAT, LSAT, and GRE that are used for admission to professional schools are MC tests...). And when we recognize that MC items are likely to become even a greater part of the "new" (read: fiscally challenged...) university, this issue will loom increasingly large.

What follows is a first draft of some ideas that might help students who have encountered this specific problem. Maybe it will help....

#### **You've Got to Know the Stuff.....**

First some ground rules. This is being written for students who genuinely have difficulty with MC questions. A clear indication of this would be the kind of exam performance outlined above; namely, a meaningful difference in performance between MC and written questions--preferably on the same examination, or at least within the same course. In this case, something about the format of MC questions disadvantages the student as mastery of the material in the written part has been demonstrated. Many of the students with this problem tend to be a bit older and really want to examine the material from a different perspective than the majority of their younger colleagues, but some students fresh out of high school experience a similar problem.

If both parts of the exam show poor performance, the first consideration would be that the material hadn't been adequately mastered prior to entering the exam. The cure here is pretty straight-forward: more time in preparation and/or a more effective approach to studying. In reading texts, most sources suggest that it takes at least three passes through a chapter to get the material up to snuff: (1) reading the chapter for "sense" and searching for the overview, (2) a second read drawing out the important points, and (3) a review pass in which you actively question yourself about the important points raised in the material. The use of flash cards, study guides, groups of classmates in discussion, and a wide range of other possible activities can help here but are never a substitute for careful, active, and systematic reading. Regular attendance at lectures also tends to help quite a bit.....

Here are some useful ideas that might help you master course material more effectively. It should be noted that, while these principles are effective for MC exams, they also apply to other exam types such as short answer and essay.

## **Scheduling Study Time and Rewarding Yourself for Good Study Behavior**

1. Make appointments with yourself for study time (i.e., in your daytimer) so that it is clear to you when you're meeting or shirking your study responsibilities. Study appointments may be among the most important that you ever make and keep since they very much determine your career.
2. When possible, plan to study even if only briefly before scheduled pleasant events (e.g., parties, trips, visits). Over time, this will tend to "fool" your nervous system into believing that studying is fun because it seems to lead to a positive outcome. It will also allow you to enjoy positive events more fully because your conscience is less likely to intrude on them to remind you about the need to study.
3. It is a lot easier to study hard if you know that you'll get a break before too long. Frequent short breaks also reduce interference between different aspects of new information while allowing for its "consolidation." For these reasons, you might try to study very hard for 20-25 minutes at a time followed by a 5-minute break for a scheduled positive event (e.g., a snack, an exercise break, call a friend, etc.). After every 3 such study/short break cycles, take a 15-minute break, repeating this overall procedure until your study time or tasks are completed. Of course, the actual schedule that is best for you or any other individual varies--work out the study periods and cycles over which you can best apply yourself on a sustained basis.
4. Study your class or lab notes or tapes as soon after the class as possible. Not only will this greatly reduce memory loss and save a lot of time later, it will also help you to fix any errors or omissions in your notes or in your understanding of the material well before you get to the exam.
5. Studying is much more effective and efficient if it is spread out over time, rather than done all at once (e.g., as in cramming the night before). Spreading it out also allows for reviewing those things that you need to work on the night before and still get a good rest which is important for peak performance.

## **Use Active Study Techniques**

1. Process the material deeply. Studying is much more effective if you mentally manipulate (i.e., play with) the information that you're reading. This is one argument against using highlighters. "Painting" your book with a highlighter gives you an illusory sense of progress through your reading without any guarantee that you've actually processed any information at all. It's better if you use a coloured pen or pencil to underline "key words" (e.g., terms, concepts) and underline "connecting words" (e.g., the "ands", "nots", "greater than", etc.) that are critical to understanding the context for the key words. This will greatly reduce what you have to attend to when it is time to review (just read the circled and underlined words). It also makes you process the material more deeply the first time through because you have to actively divide all the words into 1 of 3 categories: key words, connecting words, and unnecessary words (most words fall into this latter category).

2. Material is more likely to be remembered if it is associated with an emotional reaction. For example, give a "dramatic reading" from the text material in front of a mirror. Or make up rhymes or use other memory tricks to organize the material--they will help your later memory of it.
3. Creating vivid images of the material helps later recall. Develop interesting concrete visual images of the material in your head--they are much easier to recall at the exam than are abstract concepts. For example, if you were studying the parts of a neuron for the first time, you might imagine a neuron as a tree, its "branches" are the dendrites, its "trunk" the axon, the "bark" the myelin sheath, the "roots" the axon endings and the sap the transmitter substance. Alternatively you could imagine that you're a neuron and reaching for information with your "dendrites" (arms) and so on.

If, after you have worked over the material using some or all of the ideas mentioned above, and you honestly feel that you have mastered the material, yet you still aren't able to "show what you know" on MC exams then maybe there are several things you should do differently.

### **While Studying Practice What Tests Demand of You and Study What You Don't Know**

1. Exams demand that you retrieve information from your "knowledge warehouse". Therefore, if all you do is read, you're not practicing what you'll have to do on the test. Retrieval, like any other skill, must be practiced. After carefully and actively reading over a section, try to recover what you know about it by writing down the main points on a piece of scrap paper. This makes you practice retrieval and it also diagnoses whether or not you know the topic. If you can't recall what's in the section, you must go back go over it. In this way you also reward yourself for understanding the material. This will increase the likelihood that you will pay active attention to what you're reading the first time through. You'll also to finish your studying sooner.
2. MC exams ask you to discriminate between very similar alternatives, typically between a correct answer and several incorrect "foils". The foils are usually taken by the instructor from the same or nearby sections of the book as was the correct answer. Learning the subtle differences between the alternatives in each question is another reason that you should study your readings section by section (i.e., often 2 or 3 pages at a time), never going on to the next section until you can retrieve the full contents of the section on your scrap paper.
3. After your initial studying is complete, diagnose your knowledge of assigned readings using sample MC questions (e.g., from the student workbook, previous tests that may be available, or even items that you and/or your friends in the class make up to share with each other). If you get any of the answers incorrect on the sample questions, restudy those sections from which the item(s) came using the techniques suggested above, including the practice of retrieval.
4. In the final stage of study, you might review the assigned reading by going over the circled and underlined words, using them to reconstruct the contents of the section. Practicing retrieval by recalling the information in each topical section as soon as you finish reading it over.

5. Get a good night's sleep!

### **While You Are Writing the Exam.....**

There are clearly several approaches you can take to actually answering MC questions. While there are a number of variants, the major distinction appears to be between: (1) reading the stem, deriving the answer in your mind, and then actively trying to find the answer within the available alternatives--we'll call this the answer-search method. (2) Another approach, which we'll call the elimination method, involves crossing off the clearly incorrect alternatives and then making judicious selections from among the remaining possibilities.

The answer-search method has an intuitive component as you are able to capitalize on your very impressive recognition memory. Did you know that you would be correct in excess of 95% of the time if I showed you 1,000 slides and then showed you these 1,000 intermixed with 1,000 new ones and asked you to indicate which ones you'd seen before? Yes, our recognition memories are very impressive and many students like MC questions because they allow them to use this very powerful cognitive tool.

There is a problem here though. Recognition memory has a non-verbal, intuitive character that makes it difficult to analyze and, for some, very difficult to depend upon. When researchers, teachers, or students make assertions about anxiety being a problem on MC exams they are often referring to this component of memory as tension can interfere with recognition. It seems that being relaxed and confident (perhaps not over-analyzing) helps recognition memory do its stuff.

Many students indicate that they use a combination of the answer-search and elimination methods during a quiz. They go through the questions first using the answer-search strategy. To capitalize on recognition memory, some indicate that they try to keep fairly relaxed and "distant" from the items--waiting for the correct answer to "jump out" at them. If a clearly correct answer doesn't emerge easily, they move on to the next question. After this first pass, they then go through the items again using elimination. They spend more time properly rejecting the incorrect alternatives and maximizing the chances of picking the correct answer. In cases where they can't reject all but one alternative, many students will make their best educated guess at this point. In some cases using a system like this can help a student bring written and MC performance into harmony.

A note of caution though. You should try to bring your approach to answering MC questions into concert with your natural ways of doing things. To impose a foreign approach onto your already well-established approaches to exam writing could cause problems. The only sure antidote here is "practice, practice, practice." Get your hands on old exams, buy the study guide (if it has MC questions in it), do everything you can to work with the material, and try out different strategies. If you do this then you can enter the exam with confidence and focus on the questions rather than your strategy.

Some courses too, don't focus as much on recognition in the MC questions--you have to be pretty careful here as the answer-search method might not work very well in such cases. Consulting with students who have taken the course from the same prof recently is a good way to find out if this is problem, especially if they can show you a copy of the exams used.

### After the Exam....

If you've just written an exam and your performance on the MC questions is poor there are a number of things you can do to help you find out what the problem might be. Hopefully, the prof has made the MC questions, the correct answers, your responses, and the places where the questions came from (e.g., text page numbers etc.) available to you. If he/she hasn't, you can probably obtain this from him/her--especially if you pitch your request in terms of trying to find out why you didn't do as well as you could/should have so that you can improve on later exams (as opposed to implying a challenge to the given grade).

Before looking at the correct answers, go through the exam and try to recall how you answered the specific questions--was #4 an elimination answer? Were you confident about #8 or was it a guess? Did the response you gave on #13 just "come out of the blue" at you? (i.e., was it an answer-search answer?) Did you change the answer to #21 after you have made your original decision? and so on. If the prof returns the actual exam booklet you used during the exam you can often get some good hints about this by examining the hen scratches beside the questions. For example, most people draw a line through a rejected alternative when they are eliminating. Many circle the correct answer when they are answer-searching. (You might even consider getting into such habits so you can readily classify your answering strategies after the exam). Do your best to classify each question in terms of how you feel you answered it. There is no magic number of categories here--although you don't want to get too many going at once.

The next thing is to go through the exam key and find out which questions you got wrong and which ones you got right. Then you do a count of how many correct and incorrect questions occur as a function of the manner in which you answered the question. This can be very useful information to help you discover any problems you might be having. Here is an example based on a recent student consultation:

How answered	right	wrong	total
Answer search	7	6	13
Elimination	9	1	10
Guess	1	3	4
Total	17	10	27

This student got 63% (17/27) on the MC section of the exam. Let's see if we can use the information to help discover the problem.

First, notice that the student had to guess on 4 questions. This suggests inadequate preparation, at least for part of the material covered by the exam. When we looked up the sources of the material we found that 3 of the 4 questions were based on one chapter of the book which the student reluctantly

acknowledged he had only skimmed just before the exam. This, of course, is the easiest of all things to fix.....

But there is some more interesting stuff here too. The student classified 13 of his 27 questions (48%) as using the answer-search method. Of these he got 6 or 46% wrong. However, of the 10 questions (37%) he classified as Elimination, he only got 1 (10%) wrong. Clearly, his error rate for the Answer-Search method is much higher than for Elimination (46% versus 10%). The lesson, in this case, is clear--for this student the elimination method appears to work best (at least it did on this exam). In this case it appears that the student would do well to develop a studying and answering strategy that focuses more on Elimination.

While your results may not be as clear as this--analyzing your exam performance can be of a great help in many ways. As you come to know your categories of answering MC questions you will find that it will begin to influence not only how you answer questions on exams themselves, but you will begin to study differently as you begin to recognize material that seems appropriate to one or the other of these answering strategies.

You can do other similar analyses as well. For example, if the prof bases some questions on lectures and some on the text (and you know which is which) you can see if your MC performance is related to this. Presumably, if your text performance is low you haven't had your nose in the book enough, while low lecture-related performance says something about your attention, your attendance, your note taking, and/or your prof. You can also examine your performance in terms of which chapters the questions were drawn from. Perhaps you will find a trend in these figures (e.g., performance on chapters early in the term was poorer than on later ones) that will help you uncover something you could be doing a bit better (e.g., work harder on the earlier stuff).

There's really no magic here. By spending a bit of time finding where you screwed up you can be in a much better position to know how to correct things. Yes, it isn't much fun to have your nose rubbed in your poor performance and it's easier and more comfortable not to do it. But I do believe the benefits of doing this can, in many cases, outweigh the inconveniences. For most, the solution is very individualistic--there don't appear to be any pat answers that apply to everyone.

One last thing. With some students making up a bunch of MC questions based on course material helps them to do better. This role-reversal forces the student to look at the text material from the perspective of developing questions from it. In some cases, this gives the student considerable insight into how to prepare for MC questions. Soon, as they are working through material, they are saying to themselves: "This is a natural MC question--I should be sure to remember this stuff ...." While not a cure-all, this approach has produced some gains for some students. The questions resulting from this exercise can be passed on to other students to help them with their studying.

### **In Conclusion.....**

The ideas suggested here are not revolutionary. The simple lesson is that taking time to find out why you aren't doing as well as you think you should be is, probably, time well spent. If you think of the

amount of time you spend trying to master other skills in your life (perhaps you are a musician, or an athlete), a few hours trying to correct a problem in exam writing seems a small price to pay for great potential rewards for your future. Hopefully this document will give you a place to begin this search for answers--good luck.