Your New Learning Experience

Let's consider some new experiences you will have using this on-line artificially intelligent adaptive tutoring and testing system that is called *MediaMatrix*. First, its instructor-adjustable parameters have been set to encourage you to try out your current learning skills for passing on-line administered tests on each chapter. You may read and prepare for your tests in any manner you feel is effective for your personal learning. The entire contents are downloadable as a single printable file (in pdf format accessed through the "Downloads" links starting at www.psych-ai.com). This allows you to read offline if you prefer, but all testing is done on-line and has several notable features you will need to understand:

a. First, you are typically allowed to test and retest on a given section as many times as you wish--up to a posted deadline for that section. However, if your normal study habits don't result in at least an 80 percent accuracy level on the first two testings on each chapter, parameters are set for "required tutoring" to take effect. This means that you will be required to use the electronic adaptive tutoring aids to read and tutor on-line before you may try to improve your test scores by further re-testings on that section.

b. The adaptive tutoring system is designed to find your current skill level very quickly and then to challenge you to higher-level learning skill development as you perfect your existing skills and knowledge. A part of this system is designed to work not only on "accuracy" of your knowledge, but also on your production "fluency," which may be a relatively new concept for you unless you have studied a foreign language. So a word about "fluency" and its significance in learning.

c. Fluency refers not only to your ability to produce an answer or explanation for a question, but also your ability to do so quickly and "on demand." As noted above, this is the essence of learning to speak a foreign language "fluently." That is, you may study a new language and be able to produce a reasonable "translation" from, say English words as prompts, to an equivalent set of words in another language. But if such a translation requires use of a dictionary, note cards, or other translation aids, you certainly won't be able to hold up your end of a "real-time" conversation with a native speaker. Thus a part of "learning" a new language is a first "low-level" learning. This involves learning to recognize the vocabulary (ability to translate given lots of time), but perhaps not to produce it easily yourself. Another "higher" level of learning is developing what is sometimes called "automaticity" or "fluency" with the material, where you don't even have to "think about" what you are saying or doing. This is a level of skill development called "mastery" of a subject.

Well, you are about to read a very fundamental and simple textbook that

emphasizes only the core vocabulary and concepts of the psychology of learning and conditioning. As such, it has been designed for mastery levels of learning. Further, the incorporated adaptive tutorial system is designed to help you develop mastery skills themselves, so that you find mastering any subject an easier thing to do. In other words, it is designed to teach you some advanced learning skills. After all, if you study a subject such as learning, shouldn't you expect to learn better ways to learn as a part of that process?

In fact, a recent study of a whole class using this *MediaMatrix* system to read and study an introductory psychology textbook (Ray & Belden, 2007) found a statistically significant 20 percent average improvement in reading comprehension scores from the beginning week of classes to the last week of classes considering everyone in the class! And guess what type of test questions were used to assess this improvement in reading comprehension? They were matched-for-difficulty questions typical of SAT and GRE exam sections on reading comprehension that had nothing to do with psychology at all. So learning the content of psychology using this system can also significantly improve your general reading comprehension skills!

d. Further, if you will briefly survey the *MediaMatrix* *"User's Guide"* links available from the http://www.ai2inc.com/ home page, you will find many useful teaching/learning services available through the on-line version of this text. This on-line electronic text includes not only the full text of the book, but also useful study notes and topical outlines for every topic in each chapter. Of course it also offers opportunities for on-line tutoring to give you practice and guidance in understanding the material at the level, and in the ultimate question format, that is required. So, a brief word about its testing formats.

The following is a quoted section from a "white paper" on adaptive instruction. It summarizes the goals and purpose of the testing technique and requirements in your course:

"All questions incorporated into *MediaMatrix's* tutorials, regardless of question type or content, share a common evaluational goal. That common goal is to determine the degree to which a student has established a specific set of verbal associates between conceptually relevant terms that help to define a semantic network. Every question is coded for its inclusion of at least two conceptually related terms.

To illustrate what this means, we may refer to the last sentence in the above paragraph as a working case study in question construction and coding, as well as how these processes help to establish a database for semantic network mirroring (tracking what you know as you learn). The sentence might be used to generate the following question:

Every _____ is coded for its inclusion of at least two _____.

"question" fills the first blank and "conceptually related terms" fills the second.

If the question were changed to incorporate only a single blank, it would either say:

Every question is coded for its inclusion of at least two _____.

or alternatively:

Every _____ is coded for its inclusion of at least two conceptually related terms.

In either case, the question may be coded on the basis of its evaluation of a student's knowledge of whether the word or phrase "question" and "conceptually related terms" are somehow related!

The question type which supplies the most informational prompting for the student is the multiple choice question. In other words, a question composed in fill-in-the-blank form is given with a list of alternative words or phrases which might apply. If answered correctly, we have at least some evidence that the student associates, in the case above, "question" and "conceptually related terms."

To begin to fade the heavy use of informational prompting in this question, a slightly more difficult variation might by the simple use of the question in fill-blank form, but where no selection prompting is given as to the possible correct associated phrase to fill the blank. This is thus the second-level question type used by *MediaMatrix* to gather data on whether the student associates "question" with "conceptually related terms."

A second type of fading is one which fades the context-defining words of the sentence itself. That is, we can eliminate all but the most important element of the sentence (the element that it was coded upon!), which in the above case is the term "question." To make a question of this term, we can use a paired-associate style of presentation wherein we ask:

In your opinion, are the terms or phrases:

"question" and "conceptually related terms"

Related / Not Related ?

It should be obvious by now that the answer should be "Related"!

Ultimately, a fourth type of question may be generated wherein the

near-maximum amount of fading of any question-interpretational prompting. This type of question is the "association" test item. In the example above, we might supply the following as an evaluation item:

Questions in *MediaMatrix*:
a. _____ b. _____
c. _____ d. _____

Where correct associated terms might include: "conceptually related terms"; "multiple choice"; "fill-blank"; "paired associates "; "prompted association"; and even "fade prompts."

      Let us consider this type of question in a different way. If I asked you to convince me you know what a "Fire Truck" is but to use only "characteristics, uses, special attributes or properties, etc. that help to define or distinguish fire trucks"; you might say: "red (or yellow)", "sirens", "extinguish fires", "fire hydrants", "hoses", "ladders", "emergency", "fire station", "fire fighter/fireman", etc. Get the idea? It is like asking you to write an outline to a very abbreviated "essay" question that implicitly is saying "Describe all you know about the use, characteristics, and operations of a fire truck."

      All chapter certification tests will at least include questions in this association format unless your are notified otherwise. Work on learning the main concept terminology and all the "properties" that give that concept its clarification and definition. That's how the course will evaluate your learning; and on-line tutoring, or even self-assessing (see the User's Guide as well as other resources available on-line at www.psych-ai.com) will really help you learn how to learn this way.

      Now, let's take a test on this topic as if it were a complete chapter. Let's see how well you remember (can reproduce with fluency and various amounts of prompting) what you have just studied. If you wish, of course, you may tutor (select Tutor mode from the center menu at the top of this screen) or even take a self-assess quiz (select Assess mode from the center menu) prior to taking a true (points count) Mastery Certification test (select Certification from the center menu). Good luck, and enjoy learning about learning!

References

Ray, R. D., & Belden, N. (2007). Teaching college level content and reading comprehension skills via an artificially intelligent adaptive computerized instruction system. *Psychological Record*, 57, 201-218.