LIFE ISN'T A MULTIPLE CHOICE QUESTION

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We live in an increasingly complex world where both individually and collectively people face issues our predecessors never imagined. Globalization has connected the far corners of the international landscape; new technology has made life simultaneously easier and more complicated; and our collective commitment to address pressing economic, social, and cultural issues has never been more of a challenge.

All of this has made it more clear that life is not a series of multiple choice questions. Daily decisions require us to make sense of new streams of information, and opportunities are not presented as discrete options. We have to learn to use our critical thinking and analytic reasoning skills to assemble and reconcile seemingly contradictory information to deal with problems that are not easily defined. And we must be able to cogently communicate with others as we together solve the problems we share.

Thus, a 21st century education should prepare students for such life in all of its work, play, and civic manifestations. Bombarded with virtually infinite information, the development of that unique human capacity to make sense of the world—to make *meaning*—is key. "Higher" education must include, among many things, teaching students how to access data in an information-rich technological world, to judge what is most useful and appropriate, to think critically, and to write cogently and coherently. The ability to access, structure, and use information becomes more critical than only accruing facts.

But if we looked to what we assess in our education system (and by implication, what we value), we would be led to believe a very different story about how we are preparing young people for life in this world. Indeed, the tests we employ signal instructors, students, educational institutions and the larger public regarding what is valued, and by omission what is not valued in our society. Assessment should accurately and adequately measure the outcomes we espouse.

What We Measure Most commonly, tests assess the basics of math, reading, and writing; these, of course, are fundamental building blocks but are hardly sufficient. People also need to master skills in critical thinking, analytic reasoning and written communication. However, most tools that attempt to do so fail because the tests have been chosen less for educational value and rather more to fit time and financial constraints.

For example, critical thinking—the ability to analyze, synthesize, and judge not only the utility and appropriateness of information, but also to be able to discern the fallacies in arguments presented and construct one's own substantiated reasoning—are rarely called for in most testing. Science courses are the possible exception in which hypothesizing, making sense of anomalous data, and supporting one's conclusions are expected demands of laboratory apprenticeship. The problem is too few students have access to these kinds of courses.

Where We Measure The institutional location where assessments take place also indicates the value we place on development of such skills. For example, little assessment of writing outside of specific writing courses such as creative writing or composition is required and as such, students have developed a notion that writing is only important in English courses and English fields or professions. They no longer understand the importance of writing in physics, economics, history, or psychology, for example. Without the required repetition to engage in writing in virtually every course, students can not really achieve sufficient mastery of such skills.

Recognition of this curricular and pedagogical inadequacy has led some colleges and universities to mandate that a certain number of courses in every field be designated as "writing intensive." Students are then required to complete a minimum number of such writing intensive credits to guarantee that they will receive an opportunity to practice crafting written responses in fields outside of the English department.

Though some institutions are attempting to address the issue of training for analytical writing in a variety of contexts, there are two remaining problems. First, there is no check to ensure

that writing intensive courses are meeting the goal of teaching the analytical writing skills. Second, the unfortunate result of a writing intensive mandate for some classes is that students may feel that writing in courses that are not designated as writing intensive is unfair because no writing credit is earned. Furthermore, students may find a disincentive to focus on writing well in non-writing intensive courses. This creates additional social pressure on instructors to do away with written responses in their courses unless designated to do so by their institution. The message inferred by the students and others may be that analytical writing is not a fundamental part of learning and academic performance in every subject and every class.

How We Measure The multiple choice format has been adopted as the preferred testing format in most classrooms (high school and college) because of the ease of scoring and the clarity of "correct" and "incorrect" responses. This means that present day education does not often encourage the practice of or provide the necessary feedback on student constructed, written responses that best measure critical thinking, analytical reasoning and writing.

The Collegiate Learning Assessment (CLA) attempts to reconfigure the what, where and how of assessment. The CLA tests for broad abilities that include (but are not limited to) identifying issues and information in documents that are more or less relevant to the problem at hand, marshalling and organizing information, making a persuasive argument based on an objective analysis about some often emotional issue (e.g., a child's skating injury), presenting clear and well thought out recommendations for a course of action, and explaining the basis and rationale for these recommendations (such as identifying and discussing the related supporting and contradictory evidence).

The CLA employs a set of measures that use an open-ended format; the tasks require students to respond to a variety of issues and problems accompanied by a variety of graphic and written documents and data sets, across all disciplines of knowledge. For example, a CLA task might ask a student to (1) describe some of the problems that might arise if a given policy were implemented and (2) explain why some of these problems are more likely to occur than others (and which would be the most serious and why). Written responses are required to be cogent and coherent and are scored for both critical thinking and writing ability (thinking made visible).

Because of their complex, holistic, real-world nature, these abilities are best revealed in tests like the CLA that require students to construct their own answers rather than identify answers from a list of alternatives in a selected-response test. To be sure, it is possible to take a complex task and break it down into constituent pieces required to meet the demands of the multiple choice format. However, performing well on separate pieces is not the same as performing well on the original task. This is particularly true if the pieces have been simplified so the answer needs only to be selected rather than created.

For example, suppose one wants to test a student's understanding of the concept that *correlation* is not the same as *causation*, a fundamental concept in logic and statistics. Typically, multiple choice tests present examples of correlation and causation and then ask students to identify which is correct or are asked to choose whether or not each is correctly or erroneously applied. This is a useful way of testing for one level of understanding. But responding to such choices is different from being provided with a case study in which a variety of data are presented in which correlation and causation are misused and the student is asked to critique such an argument. This requires that the student not only understands the mistake but also recognize where and how the concepts are confused and explain why the argument fails by virtue of such confusion.

Or course, there is a time, place, and context for multiple choice tests. Multiple choice questions are useful for assessing subject matter knowledge as well as certain verbal and quantitative reasoning skills. They also usually provide highly reliable scores per hour of testing time and are relatively inexpensive to construct, administer, and score. Hence, they will continue to have an important role in college admissions and higher education assessment, particularly when the purpose of the testing program is to provide individual level scores based on a short testing time. But multiple choice tests have not been designed to measure some of the other important skills that colleges strive to develop in their students and, we argue, are increasingly important in the 21st century.

Whereas life is not a series of multiple choice questions, perhaps assessment is. Given the choice of standardized testing (that assesses subject matter knowledge) and the innovative CLA (that captures higher-order skills of critical thinking, analytic reasoning and written communication), the answer is all of the above.

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