

NSF recognizes a need to develop better tools to help evaluate higher order thinking skills such as critical thinking that are essential for STEM disciplines and for a competitive national workforce. This project addresses that need by providing an innovative tool to assess critical thinking skills and engage a broad spectrum of educators and researchers with its use. The project has benefited a

of NSF projects have found significant gains in CAT scores demonstrating the transfer of skills developed within a discipline's content to the interdisciplinary content of the CAT instrument.

The project has enhanced the capacity to assess critical thinking skills and evaluate educational practices designed to improve those skills across a broad range of higher educational institutions. Over 250 institutions have collaborated including HBCU's, other minority serving institutions, community colleges, as well as a broad range of public and private universities. Involvement has been supported through electronic dissemination (e.g., www.CriticalThinkingTest.org, YouTube, social media, email), conference presentations, professional publications, and regional training workshops. Consequently, a growing body of educational research is using the CAT instrument to evaluate innovative educational practices to improve critical thinking skills.

Various constituent groups in our society are in widespread agreement about the importance of critical thinking. For instance, the Higher Education Research Institute (HERI) found that over 99% of faculty across the country felt that teaching critical thinking is "essential" or "very important."¹ Employers also recognize the importance of critical thinking and problem solving skills. A recent survey by the American Association of Colleges and Universities (AACU) found that 75% of employers want colleges to place more emphasis on critical thinking, real world problem solving, communication, and creativity. Furthermore, 93% of employers felt that these skills were more important than a specific college major.² Several reports from the National Research Council also identify critical thinking, non-routine problem solving, and communication skills as essential for success in 21st century careers.^{3,4}

Despite the clear agreement on the importance of critical thinking and problem solving skills, these skills are not frequently assessed in most college courses.^{5,6} Higher education courses have a pervasive tendency to emphasize the rote retention of factual information.^{7,8}

One explanation for the widespread emphasis on the rote retention of factual information is that constructing a factual knowledge test is much easier than designing an assessment that evaluates critical thinking skills. Most faculty have little or no training in developing classroom assessments that promote the development of critical thinking skills.^{9,10}

assess student learning can have a greater impact on learning than the particular teaching pedagogy that is used.¹²

The CAT instrument was designed to assess a broad range of skills that faculty across a wide range of disciplines and institutions associate with critical thinking and

followed by a prompt to identify new information or data needed to evaluate the alternative explanations.

In part II of the CAT, a non-routine real-world problem

average of the three scores is assigned to the response. During the scoring workshops, faculty enter their assigned scores in a predesigned scannable score sheet. The actual determination of a score for each response is done later when automated scanning and analysis is performed. The reliability of first and second scores has been quite good with our latest analyses indicating $R = .92$ ($n = 14,600$ tests)

Biographical Information

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