QUALITY ENHANCEMENT PLAN PROPOSAL
BROWARD COLLEGE
CRITICAL THINKING

QEP OVERSIGHT

CRITICAL THINKING COMMUNITY (CTC)

COMMUNITY ENGAGEMENT

CRITICAL THINKING FORUMS

CT PROFESSIONAL DEVELOPMENT WORKSHOPS
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CT QEP—Appendices (ZIPPED FILE)
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EXECUTIVE SUMMARY

The Critical Thinking QEP proposed in this topic paper is designed to benefit the entire Broward College academic community: students, professors, and staff. This QEP will also transcend the walls of BC by producing well-educated, active critical thinkers able to serve a diverse, multi-cultural society both now and in the future. The principle held that “no society, local or global, can sustain itself and flourish without its members learning to think together” (InsightAssessment.com) underpins the design of this Critical Thinking QEP. This particular QEP will focus on enhancing students’ critical thinking through participation in academically rigorous experiences that involve inquiry, application, reflection, and communication. This project directly manifests the College’s mission to foster student achievement, lifelong learning, and academic excellence, as well as respond to the conditions and concerns of the contemporary world.

The QEP will provide professional development opportunities to help educators enhance their students’ critical thinking throughout this experience. Critical thinking may be an academic exercise in many courses, but there is no consistent College-wide application of intentional pedagogy for critical thinking. This Quality Enhancement Plan will enable the College to 1) develop a definition of critical thinking that establishes a shared standard; 2) provide opportunities for professional development in pedagogies that have been shown to improve critical thinking; 3) initiate the full Critical Thinking QEP designed to enhance student learning; 4) systematically assess changes in students’ critical thinking; and 5) evaluate the assessment results and retool the enhancement plan as appropriate. The assessment process will allow the QEP team to analyze, expand, or redirect its efforts, improving the plan as the College moves forward.

Successful implementation of the Critical Thinking QEP will enrich the student experience by adding critical thinking components to courses across the curriculum as well as to specialized programs, and, consequently, will create graduates with analytical skills that prepare them to be problem solvers and innovators in a complex and evolving job market.
DESIRED STUDENT LEARNING OUTCOMES

Broward College students will have an enhanced learning experience by entering an environment in which the practice, teaching, and application of Critical Thinking fosters traits of mind. Students will participate in curricular, co-curricular, and community learning environments characterized by exemplary teaching, innovative scholarship, creative expression, active research, engaged service, and practical experience. In addition to enabling our students to attain the goals Broward College upholds in our mission statements and policies, and empowering them to learn independently and effectively, we submit that Critical Thinkers are able to do the following things: think their way to conclusions; defend positions on complex issues; clarify issues and conclusions; solve problems; transfer ideas to new contexts; examine assumptions; assess alleged facts (“received knowledge”); explore implications and consequences; and increasingly come to terms with the contradictions and inconsistencies in their own thought and experience. These abilities become life skills, and are an essential part of lifelong learning.

This QEP project will develop Critical Thinking skills in general as well as content-specific abilities. The improvement of thinking, and therefore of learning, branches across disciplines and reaches all sectors of the Broward College community. In addition to the overall enhancement of the learning experience for our students, the Critical Thinking project provides:

- applicability of methodology to any field (Critical Thinking in mathematics, humanities, IDH/capstone courses)
- ability to articulate solutions in the work force (practical application of education; a viable solution to meet a need)
- confidence building (Critical Thinkers know they will be able to come up with a solution to a problem, because they know they have the ability to do the methodological thinking which will result in a solution, which can then be articulated and implemented)
- SLS component: thinking critically about themselves, about college (related to building confidence)
• perspective essential to a student’s future and success (Critical Thinkers are not afraid of situations because they know they will be able to tackle them)

• a connection to the more abstract part of what we do (develop essential characteristics of an educated mind which can make the connection between abstract thought and concrete action)

• enhancement of activities currently being utilized, with respect to substance and quality of these experiences; according to the CCSSE report (Student Engagement) regarding BC students’ academic experiences in and outside of the classroom, students responded that often/very often:
  – 54% asked questions or contributed to discussions
  – 31% gave presentation in class
  – 37% worked with classmates on projects in class
  – 20% worked with classmates outside of the classroom
  – 5% participated in community-based projects as part of their course

→ every one of these activities would be enriched by the Critical Thinking project

While the Critical Thinking QEP addresses a wide range of needs and will produce enhanced learning in the various ways described above, there are specific student learning outcomes which form the core of the project and which can be measured by specific assessment instruments as described in the Assessment section of this proposal (below). These specific outcomes are the following:

Outcome 1: Students develop skills in critical thinking, clear and thoughtful communication, creative expression, and honest open inquiry.

Outcome 2: Students develop mastery of a specific discipline field and an understanding of the connections among disciplines, as well as a respect for differences among people and ideas.

Outcome 3: Students develop the ability to identify and clarify key concepts, problems, questions, and issues.

Outcome 4: Students develop the ability to identify and effectively utilize information relevant to a specific purpose.

Outcome 5: Students develop the ability to analyze and reflect upon relevant information.
Outcome 6: Students develop confidence in their ability to reach well-reasoned, logically supported conclusions, and accept responsibility for such conclusions.

Further, each of the desired student learning outcomes enumerated above (1-6) may be expanded to provide specificity with respect to overall goals. To that end, the student learning outcomes determined in Outcomes 1-6 have the following added dimensions:

- Students will demonstrate their ability to pose vital questions and identify problems, formulating them clearly and precisely.
- Clarity: statements expand on ideas, express ideas in another way, provide examples or illustrations where appropriate
- Accuracy: statements are factually correct and/or supported with evidence
- Precision: statements or claims contain specific information, descriptions, or data
- Students will demonstrate their ability to gather relevant information and interpret effectively.
- Relevance: statements pertinent to the topic; statements connect to the central point; statements are supported by evidence acquired by research methodologies and citation methods within the discipline
- Students will demonstrate their ability to consider alternative systems of thought impartially, recognizing and assessing assumptions, implications, and practical consequences.
- Breadth: statements consider alternative points of view, alternative interpretations of the situation, alternative perspectives.
- Students will demonstrate their ability to develop well-reasoned conclusions and solutions, checking them against relevant criteria and standards.
- Depth: statements supported through demonstration of the reasoning behind the conclusions, anticipate and answer the questions that the reasoning raises and/or acknowledges the complexity of the issue.
- Logic: statements demonstrate rational line of reasoning from the facts presented
• Integration: statements demonstrate the connections between the information gathered, experience, and the consideration of alternatives; statements are relevant to the specific category of the learning goal being discussed.

➢ Students will demonstrate their ability to communicate effectively with in determining solutions to complex problems others through writing and/or presentations.

• Significance: primary issue identified is the most significant problem; statements conclusions or goals represent the major issue.

• Fairness: are alternative perspectives represented without bias or distortion.

These more detailed desired student learning outcomes reflect well known Universal Intellectual Standards as delineated in the Foundation for Critical Thinking's (FTC) research and literature. In addition, Ash, Clayton, & Moses, Learning through Critical Reflection: A Tutorial for Service-Learning Students (Raleigh, NC, 2009), inspired some of the connections made between academics and practical application expressed in the detailed list of intellectual characteristics discussed in this section.

LITERATURE REVIEW AND BEST PRACTICES

The authors of this proposal believe that developing critical thinkers is central to the mission of all educational institutions. Fostering critical thinking not only allows students to master subject matter, but also (and arguably more importantly) encourages students to become effective citizens, capable of reasoning ethically and acting in the public good. One can have limited critical thinking skills (tied to a specific content area) without developing critical thinking skills in general. The best practice would be to cultivate both, so students learn to reason well across a wide range of subjects and domains. The bottom line: if we think well while learning, we learn well; if we think poorly while learning, we learn poorly. This is the distinction many of us often make when speaking of “active” vs. “passive” learning.

This literature review will explore ways in which critical thinking has been defined by researchers, examine the instructional implications of research findings, and discuss best practices for implementing critical thinking in the college curriculum.
Definition of Critical Thinking

One of the most widely accepted definitions used in assessing critical thinking abilities is the following: Critical thinking is the process of analyzing and assessing thinking with a view to improving it. Critical thinking presupposes knowledge of the most basic structures in thinking (the elements of thought) and the most basic intellectual standards for thinking (universal intellectual standards). The key to the creative side of critical thinking (the actual improving of thought) is in restructuring thinking as a result of analyzing and effectively assessing it. (Foundation for Critical Thinking, 2007). Though there is a certain consensus among thinkers about thinking, the challenging of defining critical thinking itself has proved daunting for some time.

Philosophical

It comes as no surprise that some of the earliest thinkers in history (Socrates, Plato, Aristotle) wrestled with the definition, understanding, and development of thought. It follows that those who think, write, and teach in contemporary society (such as Matthew Lipman and Richard Paul) face challenges not dissimilar to those of the ancients. Irrespective of time and place, the philosophical definition of critical thinking emphasizes the qualities and characteristics of the critical thinker, the qualities and standards of thought, and focuses on what people are capable of doing under the best of circumstances

The American Philosophical Association tells us that the ideal critical thinker is someone who is inquisitive in nature, open-minded, flexible, fair-minded, has a desire to be well-informed, understands diverse viewpoints, and is willing to both suspend judgment and to consider other perspectives. (Facione, 1990). Donald L. Hatcher and L. Anne Spencer maintain that critical thinking is thinking that attempts to arrive at a decision or judgment only after honestly evaluating alternatives with respect to available evidence and arguments. The propensity and skill to engage in an activity with reflective skepticism is the definition advanced by some (McPeck, 1981), while others come full circle and point out that critical thinking refers to reflective and reasonable thinking that is focused on deciding what to believe or do. (Ennis, 1985; Lai, 2011).
**Cognitive Psychological**

This approach to defining critical thinking investigates how people actually think versus how they could or should think under ideal conditions (Sternberg, 1986). Cognitive psychologists criticize philosophical definitions as not always corresponding to reality, and they strive to create lists of skills or procedures performed by critical thinkers (Lewis & Smith, 1993) as a way of defining the activity itself. The mental processes, strategies, and representations people use to solve problems, make decisions, and learn new concepts (Sternberg, 1986), as well as the use of those cognitive skills or strategies that increase the probability of a desirable outcome (Halpern, 1998), further define critical thinking from the cognitive psychological perspective. Probably the most relevant (or perhaps useful) factor in the cognitive psychological approach for defining critical thinking is the view that critical thinking is concerned with seeing both sides of an issue, being open to new evidence that disconfirms your ideas, reasoning dispassionately, demanding that claims be backed by evidence, deducing and inferring conclusions from available facts, solving problems, and so forth (Willingham, 2007; Lai, 2011).

**Educational**

Among the best known approaches to defining critical thinking, particularly in the modern context, is that of Benjamin Bloom and associates (1956), who created a taxonomy for information processing skills. Bloom’s taxonomy is hierarchical, with “comprehension” at the bottom and “evaluation” at the top originally. Analysis, synthesis, and evaluation (the three highest levels) are frequently said to represent critical thinking (Kennedy et. al., 1991; Lai, 2011). One benefit of the educational approach is that it is based on years of classroom experience and observations (which makes it somewhat functionalist). But the approach is limited in its vagueness; it lacks the clarity necessary to guide instruction and assessment in a useful way (Ennis, 1985; Sternberg, 1986; Lai, 2011).

Critical thinking is often compared with problem solving, and thereby linked to more functional than purely intellectual notions of pedagogy. Robert Ennis argues that the general use of the term critical thinking “roughly means reasonable, reflective thinking that is focused on deciding what to
believe or do.” (Ennis, 1991). He notes that this view does not exclude creative thinking, and that creative acts (formulating hypotheses, alternative ways of viewing a problem, questions, possible solutions, and plans for investigating something) fall under this rubric. However, the emphasis of this general usage is on reflection, reasonableness (essentially, rationality), and decision making about belief and action. (Ennis, 1991). Ennis provides a visual representation of the elements of critical thinking that are part of a decision-making process in what he calls a “streamlined conception” as distinct from a “concept” of critical thinking (which he in turn learned from John Rawls, 1971). This rough view is sketched out in the image below.

Ennis further characterizes the ideal critical thinker using a list of twelve dispositions and sixteen abilities, seeking to provide an outline which could serve as a checklist for a critical thinking curriculum. Ennis intended it as useful guide to educational decisions. He lists the dispositions and abilities as follows:
A. Dispositions: to be clear about the intended meaning of what is said, written, or otherwise communicated; to determine and maintain focus on the conclusion or question; to take into account the total situation; to seek and offer reasons; to try to be well informed; to look for alternatives; to seek as much precision as the situation requires; to try to be reflectively aware of one’s own basic beliefs; to be open-minded and consider seriously other points of view than one’s own; to withhold judgment when the evidence and reasons are insufficient; to take a position (and change a position) when the evidence and reasons are sufficient to do so; and to use one’s critical thinking abilities.

B. Abilities: to identify the focus (the issue, question, or conclusion); to analyze arguments; to ask and answer questions of clarification and/or challenge; to define terms, judge definitions, and deal with equivocation; to identify unstated assumptions; to judge the credibility of a source; to observe, and judge observation reports; to deduce, and judge deductions; to induce, and judge inductions; to make and judge value judgments; to consider and reason from premises, reasons, assumptions, positions, and other propositions with which one disagrees or about which one is in doubt—without letting the disagreement or doubt interfere with one’s thinking (suppositional thinking); to integrate the other abilities and dispositions in making and defending a decision. (Ennis, 1991).

**Essential role of thinking in the acquisition of knowledge**

Thinking leads man to knowledge. He may see and hear and read and learn whatever he pleases, and as much as he pleases; he will never know anything of it, except that which he has thought over; that which by thinking he has made the property of his own mind. (Pestalozzi). [The process] consists, not merely in the passive reception into the mind of a number of ideas hitherto unknown to it, but in the mind’s energetic and simultaneous action upon and towards and among those new ideas … it is a digestion of what we receive, into the substance of our previous state of thought … There is no enlargement, unless there be a comparison of ideas one with another, as they come before the mind, and a systematizing of them. We feel our minds to be growing and expanding then, when we not only learn, but refer what we learn to what we know already. (John Henry Newman); the critical thinking Newman defines leads to both content mastery and deep learning.
**Consensus and Dissent**

An expert consensus statement regarding critical thinking and the ideal critical thinker (Facione, "Critical Thinking: What It Is and Why It Counts") reads as follows: "We understand critical thinking to be purposeful, self-regulatory judgment which results in interpretation, analysis, evaluation, and inference, as well as explanation of the evidential, conceptual, methodological, criteriological, or contextual considerations upon which that judgment is based. CT is essential as a tool of inquiry. As such, CT is a liberating force in education and a powerful resource in one's personal and civic life. While not synonymous with good thinking, CT is a pervasive and self-rectifying human phenomenon. The ideal critical thinker is habitually inquisitive, well-informed, trustful of reason, open-minded, flexible, fair-minded in evaluation, honest in facing personal biases, prudent in making judgments, willing to reconsider, clear about issues, orderly in complex matters, diligent in seeking relevant information, reasonable in the selection of criteria, focused in inquiry, and persistent in seeking results which are as precise as the subject and the circumstances of inquiry permit. Thus, educating strong critical thinkers means working toward this ideal. It combines developing CT skills with nurturing those dispositions which consistently yield useful insights and which are the basis of a rational and democratic society."

It is more difficult to find consensus among experts, however, with regard to critical thinking instruction. Domain specificity is one of the most contentious of these topics. R.H. Ennis (1989) described four instructional approaches that cover the spectrum from stand-alone CT courses to full integration of CT into regular (content) courses. The first of these, the general approach, entails direct and explicit instruction in critical thinking skills as a separate course. Critical thinking skills and abilities are emphasized outside the context of specific subject matter, and content tends to be drawn from problems that students are likely to encounter in their daily lives. Van Gelder (2005) appears to advocate for the general approach to critical thinking instruction, arguing that students need “deliberate practice” in exercising critical thinking skills and abilities. However, students also must be taught to transfer critical thinking to a variety of contexts by providing them opportunities to practice applying critical thinking skills in diverse contexts. Halpern (2001) argues that instruction in general thinking..."
skills, taught as a “broad-based, cross-disciplinary” course, is the most effective way of teaching critical thinking. (Lai, 2011)

The second method discussed by Ennis is the infusion approach, which entails in-depth instruction in the subject matter plus explicit instruction on general critical thinking principles; this is provided in the context of specific subject matter. Ennis (1989) indicates that this approach is commonly seen in various “across the curriculum” movements. Somewhat related to the infusion approach is immersion, in which students are engaged in deep subject-matter instruction; critical thinking instruction is not made explicit. Instead, students are expected to acquire these skills as they investigate and examine the particular subject matter (Ennis, 1989). Both Bailin, et. al. (1999) and Lipman (1988) are proponents of the infusion and immersion approaches; Silva (2008) echoes this viewpoint, maintaining that knowledge and thinking have to be taught simultaneously. Likewise, Case (2005) argues that critical thinking is a lens through which to teach the content and skills embedded in the curriculum; and Pithers and Soden (2000) reject the view that critical thinking could be taught as a separate subject. Rather, critical thinking should be viewed as a way of teaching and learning in any domain. (Lai, 2011)

The culmination of the Ennis categories is the mixed approach, which combines elements of both the general and subject-specific approaches. Teachers pair stand-alone instruction in general critical thinking principles with application of critical thinking skills in the context of specific subject matter. Explicit instruction in critical thinking skills can be incorporated into both the general and the specific components (Ennis, 1989). Facione (1990) appears to advocate for this approach when he notes that critical thinking can be taught in the context of domain-specific content, or content drawn from “events in everyday life.” Paul (1992) recommends basic critical thinking skills courses, as well as including critical thinking within discipline-specific courses. Kennedy et al. (1991), conclude that the evidence does not support the superiority of any particular approach, thus they recommend using the mixed approach. (Lai, 2011) Abrami, et. al. (2008) found that the mixed approach had the largest effect-sizes and the immersion approach had the smallest, which suggests that educators should
approach critical thinking instruction both by integrating critical thinking into regular academic content, and by teaching general critical thinking skills as a stand-alone component. This finding reinforces the importance of providing explicit instruction in critical thinking rather than simply viewing critical thinking as an implicit goal of a course. The authors also found that interventions in which educators received special training in teaching critical thinking had the largest effect-sizes, compared to studies in which course curricula were simply aligned to critical thinking standards or critical thinking was simply included as an instructional objective. Thus, successful interventions may require professional development for teachers specifically focused on teaching critical thinking (Abrami, et. al., 2008; Lai, 2011).

**Teaching and Methodology**

According to the National Research Council’s publication entitled *How People Learn*, research on learning and teaching supports the following findings:

1. Students come to the classroom with preconceptions about how the world works. If their initial understanding is not engaged, they may fail to grasp new concepts and information, or they may learn them for purposes of a test but revert to their preconceptions outside the classroom.

2. To develop competence in an area of inquiry, students must: a) have a deep foundation of factual knowledge, b) understand facts and ideas in a context of a conceptual framework, and c) organize knowledge in ways that facilitate retrieval and application.

3. A metacognitive approach to instruction can help students take control of their own learning by defining learning goals and monitoring their progress in achieving them.

These findings have significant implications for teaching:

1. Teachers must draw out and work with the preexisting understandings their students bring with them.

2. Teachers must teach some subject matter in depth, providing many examples in which the same concept is at work and providing a firm foundation of factual knowledge.

3. The teaching of metacognitive skills should be integrated into the curriculum in a variety of subject areas (Bransford, Brown, & Cocking, eds., 2000).
The QEP’s focus on critical thinking will demonstrate that many CT basics align with some of the best practices for improving learning. Research findings such as those noted above encourage the QEP team to recommend the placement of CT pedagogy within courses throughout the curriculum rather than in a stand-alone critical thinking course. The National Research Council’s conclusions further reinforce the team’s views that students need domain-specific knowledge before they can be successful in large-scale projects and that metacognitive skills must be explicitly taught. Because cognitive scientists have shown that practice improves learning, the team believes that multiple projects or experiences with a shared CT pedagogy and vocabulary will develop students’ metacognitive skills and, hopefully, their dispositions to use them. (UNC)

**Applications and Venues**

The breadth of a critical-thinking approach is far reaching, not only across discipline fields in an academic setting but also outside the academy in private business, public sector, governmental, and military settings, to name a few. The Army Management Staff College at Fort Belvoir, Virginia, for example, has developed its critical thinking program and policy by incorporating the central design of The Foundation for Critical Thinking. In particular, the AMSC standardized on the synthesis of critical thinking presented by Richard Paul as the most useful for their purposes. One of Dr. Paul’s definitions of critical thinking which summarizes the AMSC approach is the following: "Critical thinking is the ability to think about one’s thinking in such a way as:

1. to recognize its strengths and weaknesses and, as a result,

2. to recast the thinking in improved form.

Such thinking about one’s thinking involves the ability to identify the basic elements of thought (purpose, question, information, assumption, interpretation, concepts, implications, point of view) and assess those elements using universal intellectual criteria and standards (clarity, accuracy, precision, relevance, depth, breadth, and logicalness)." (The Foundation for Critical Thinking)

There are complex answers to the question of why we need to teach critical thinking. These start with an understanding that the Army’s environment has changed fundamentally since 1989. The
old paradigms that we lived in have shifted or been demolished, and responses that worked for us
during the period of "fearsome stability" with the Former Soviet Union may no longer be applicable. As
a result of the changes on many fronts, the Army has an immediate and widespread need for people
who can examine assumptions, work through problems and evaluate different courses of actions,
consider the implications of situations, and look to not only first order consequences of actions, but
second and third order consequences as well. In other words, the Army needs people who can think
critically. This is reflected in the Army’s new leadership doctrine. The April 1997 draft of FM22-100,
Army Leadership, describes critical thinking using the term "critical reasoning" (page 7-12) and
identifies it as one of the key conceptual skills leaders must possess starting at the junior leader level.
(Roy Eichhorn, Strategic Systems Department, Developing Thinking Skills: Critical Thinking at the Army
Management Staff College)

Another example of the potential use of critical thinking methods, of a specialized and
somewhat sophisticated sort and outside of academe, is that of counterfactual reasoning in the context
of National Security Analysis. Noel Hendrickson’s monograph Counterfactual Reasoning: A Basic
Guide for Analysts, Strategists, and Decision Makers (2008) explains the need for this type of
sophisticated and systematic thinking: Counterfactual reasoning is the process of evaluating conditional
claims about alternate possibilities and their consequences (i.e., “What If” statements). These
alternatives can be either past possibilities (e.g., “If the United States had not abolished the Iraqi army
in 2003, then the Iraqi insurgency would have been significantly smaller in 2005.”) or future possibilities
(e.g., “If Iran had nuclear weapons, then it would provide this technology to Hezbollah.”).
Counterfactuals are essential to intelligence analysis because they are implicit in all strategic
assessments. For, any proposal about the appropriate response to a particular situation (past or future)
assumes that certain things would or might occur if that response were made. However, at present,
there is no comprehensive system of counterfactual reasoning to establish if these underlying
assumptions are plausible. Such a system would have immense potential for analytic transformation as
it could unite (or replace) a series of extant techniques of assessing alternate possibilities, such as
“What If” Analysis, “High Impact/Low Probability” Analysis, and “Alternate Futures/Scenario” Analysis. And, ultimately, counterfactual reasoning represents the most ideal way to analyze possibilities, for it considers what would or might happen if the possibility were to occur, rather than attempting to determine if the possibility itself is probable.

Selected References and Resources


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Foundation for Critical Thinking: http://www.criticalthinking.org//
Thinker's Guides
  Active and Cooperative Learning
  Analytic Thinking
  Art of Socratic Questioning
  Aspiring Thinker’s Guide
  Critical & Creative Thinking
  Critical Thinking Competency Standards
  Critical Thinking Reading & Writing Test
  Critical Thinking, Concepts & Tools
  Engineering Reasoning
  Ethical Reasoning
  Fallacies: The Art of Mental Trickery
  How to Detect Media Bias & Propaganda
  How to Improve Student Learning
  How to Read a Paragraph
  How to Study & Learn
  How to Write a Paragraph
  Scientific Thinking
  Taking Charge of the Human Mind
  The Art of Asking Essential Questions
  A Critical Thinker's Guide to Educational Fads
  Thinker's Guide to Intellectual Standards
  Glossary of Critical Thinking Terms and Concept

**ACTIONS TO BE IMPLEMENTED**

This plan to improve our students’ critical thinking abilities can easily be implemented by utilizing efforts in which the College already measures student learning outcomes. For instance, the QEP Committee can work closely with the General Education Outcomes and Assessment Team (GEOAT) which conducts assessments every fall and winter term of student achievement of the College’s eight General Education Competencies. In addition, the work of the Engaged Student Learning Committee, which interprets the data from the Community College Survey of Student Engagement, and the Writing Credit Committee, which has recently recommended new college-level writing guidelines for Gordon Rule courses and is currently devising strategies to provide guidance for writing across the curriculum, is also relevant to this plan.
**General Education Outcomes and Assessments Data**

The GEOAT data from the Fall 2011 and Winter 2012 semesters (Terms 20121 and 20122) provides an excellent starting point in which the QEP Committee can gauge the potential implementation strategies and measures of success of this proposed critical thinking plan (See Appendices I, II and III). Of the eight BC General Education Competencies, the following directly relate to critical thinking skills: (1) Read with critical comprehension, (2) write clearly and coherently, (3) demonstrate literacy as appropriate within a given discipline (overall category, with the following subcategories as relevant to this project: (a) information literacy, (b) technology literacy, (d) cultural literacy, (e) quantitative literacy, (f) scientific literacy, and (g) environmental literacy), (4) apply problem-solving skills or methods to make informed decisions in a variety of contexts, (5) differentiate between ethical and unethical behavior, (6) demonstrate an understanding of physical, biological, and social environments, and how individual behaviors impact this complex system, and (7) demonstrate an understanding of and appreciation for human diversities and commonalities. The college-wide GEOAT data from Terms 20121 and 20122 reveals that our students are achieving high levels of competency in key critical thinking areas, but are below the 70% performance benchmark which GEOAT has set as an acceptable level of achievement in others. Much can be gleaned from this data.

The areas in which the assessment study reflects below-acceptable performance are in competencies 3 (overall the achievement rate is 71%, but it is below 70% in areas 3b, 3e, and 3g), and 4, suggesting that a QEP which fosters the improvement of critical thinking skills across the general education curriculum (and in all aspects of student learning at the College) may help improve the level of achievement and raise these levels to the acceptable rate or even to GEOAT’s ideal rate of 90%. For instance, this proposed QEP encourages the connection between problem-solving and writing skills, among many others. Since our student achievement rate in the problem-solving area has been rather low (61% in 20121 and 58% in 20122) but has been higher in writing, focusing on problem-solving through writing should help to improve student achievement rates in this key component of critical thinking as it relates to BC’s General Education Competencies and Student Learning Outcomes.
Even in areas in which student achievement of the competencies is above the acceptable level (competencies 1, at 72%; 2, at 79%; 3 at 71% 3a, at 82%; 3d, at 76%; 5, at 83%; 6, at 75%; and 7, at 70%), there is still room for growth, especially since some of these numbers have fluctuated throughout the year (i.e. competency 7, in which achievement was at 75% after 20121 but was at 70% after 20122). More specifically, in terms of competency 1, read with critical comprehension, a critical thinking-based QEP can provide faculty with professional development opportunities to enhance student critical reading abilities. In addition, this QEP can encourage improvement in competency 3d, defined by the 2010-2011 General Education Task Force as “recognizing, understanding, and appreciating the similarities and differences between one’s own culture and the cultures of others through a study of the arts, customs, beliefs, values, and history that define a culture.” Here, such a QEP can move BC students beyond the “recognition” part of this definition and work to improve their cultural literacy through the use of existing college programs such as learning communities and service learning to encourage analysis of cultural differences and not just describing differences. In other words, in learning community assignments or in community service activities, students would appreciate cultural differences and analyze the historical, sociological, anthropological, religious, philosophical, and/or economic reasons for those differences. Finally, in terms of competency 7, this QEP would seek to identify ways to improve student achievement given how closely this competency relates to the overall College vision and mission statements and its goals regarding inclusion.

**Implementation Strategies**

In implementing strategies to incorporate GEOAT’s assessment work with this proposed QEP, the College would also be in compliance with SACS Core Requirements 2.12, which states, “The institution has developed an acceptable Quality Enhancement Plan that includes an institutional process for identifying key issues emerging from institutional assessment and focuses on learning outcomes and/or the environment supporting student learning and accomplishing the mission of the institution.”
In addition, the committee proposing this plan also conducted a survey of BC faculty to determine the validity of a critical thinking QEP as there does not appear to be concrete evidence that there is a college-wide initiative or “master plan” established that focuses on improving students’ critical thinking skills. We designed an online survey to better measure our understanding of the critical thinking assessment practices and enhancement strategies most commonly used by BC faculty. The results of our survey indicate that BC faculty not only see the need for improvement in this area, but are also willing to participate in professional development workshops that can help them develop better critical thinking practices.

The survey was delivered via email to the entire Broward College faculty, producing 85 responses in just four days. When asked if they would like students to be more critical thinkers, 97.65% of the faculty members agreed (or 83 out of 85, with just one negative and one indifferent response). Faculty members were also asked about the methods they have used to encourage students to think independently, and the most popular answer by a wide margin was the use of written assignments (with 69 of the entries or 81.17% of the responses). The second most popular answer was case studies, with 34 responses, and the third most popular was quantitative assignments with 26 responses. In addition, 69.41% of the faculty who responded to the survey stated that they have tried at least two different methods to encourage their students to think independently. When asked how they had assessed their students’s problem-solving skills, 72.94% of the faculty members who responded to the survey answered that they had used direct response writing assignments, followed by 40% who replied that they had used case studies, and 30.58% said that they had used quantitative assignments. Many of the faculty, or 43.52% of the respondents, stated that they have used two out of the three most favored options. Faculty members were also asked their views about the best way to measure a student’s ability to think critically and 78.82% of the respondents (or 67 out of 85) chose written assignments. Faculty members were also asked how they have assessed the outcomes of student critical thinking and the most popular answer was in-class discussion with 80%, followed by group assignments with 52.94% and online discussion with 22%. Finally, we asked BC faculty members if
they were willing to attend professional development workshops to develop critical thinking practices. The results indicate that faculty would be willing to attend the types of workshops outlined in this QEP plan as 68.23% (58 out of 85) stated that they would be willing, 31.74% said maybe, and none of the respondents replied that they would not be willing to attend these workshops.

What this committee learned as a result of reading these responses is that aside from GEOAT’s data and the above interpretation of how that data relates to critical thinking skills, there is a lack of college-wide data that links critical thinking to student learning throughout the College (for instance, in developmental education and other academic programs that are not part of the General Education curriculum). The GEOAT model is a very useful one in demonstrating the effectiveness of faculty participation in the process of re-designing course outlines, devising assessment strategies, conducting assessments, and compiling assessment data, as there has been clear improvement of student achievement of competencies throughout all of the disciplines in the General Education Curriculum. For instance, student achievement of competency 2, write clearly and coherently, remains strong, suggesting that the faculty focus on improving the quality of writing as a core component of applying critical thinking skills, has shown promising results. The fact that student achievement of problem-solving skills remains low compared to other areas suggests that a more holistic plan needs to be put in place to achieve a significantly higher effect in this critical area.

Aside from the internal implementation strategies to improve student learning and measure student achievement of critical thinking skills outlined above, this plan would also implement outside strategies to measure the success of BC students in achieving the goals of this proposed QEP. Examples of these include the Critical Thinking Assessment Test (Center for Assessment & Improvement of Learning, Tennessee Tech University) and the CCTDI (California Critical Thinking Disposition Inventory). Here, the QEP Committee would select the appropriate instrument to measure the achievement of the QEP Student Learning Outcomes and administer the test with each incoming freshman class (having all FTIC students complete the test as part of the annual mandatory New
Student Orientation) and then follow-up by administering the test with each graduating class (having students complete the test as part of their mandatory graduation application procedures).

**Plan of Action**

The proposed plan has two essential components: Professional Development, and College-Wide Community Engagement Campaign.

The professional development initiative will provide all faculty and staff with training opportunities and resources that enhance their abilities to improve students’ critical thinking skills. These resources will range from formal, on-campus, group workshops to self-paced, fully online, and blended workshops on critical thinking in theory and practice.

The professional development efforts described in this initiative will utilize the human and material resources of Broward College whenever possible, and seek the expertise of consultants and training professionals when necessary. It is our opinion that the most cost-effective strategy for professional development should involve “train-the-trainer” activities in which a small group of faculty or staff receive intensive training that they may then share with colleagues. This approach also contributes to the interdepartmental cooperation and communication that is essential for the success of this plan.

The first step in the professional development initiative will be to create a college-wide, cross-discipline Critical Thinking Community (CTC) of no more than 21 members composed of BC faculty and staff; the number of members comprises 7 per campus (North, Central, South). The members of this community will engage in an extended planned program to enhance their critical thinking teaching skills, with the goal to acquire the appropriate knowledge to develop a variety of professional development workshops that can then be used by faculty to improve their facilitation of students’ critical thinking skills in courses taught at Broward College.

As part of their training, the members of the CTC will participate in critical thinking conferences, attend workshops, and receive on-site training by consultants and professionals in the field.

The second step is to designate specific critical thinking-enhanced pilot workshops and to offer appropriate training to all faculty and staff involved with critical thinking-enhanced pilot courses.
The third step of this initiative is to fine-tune those professional development workshops, open them up to larger groups of instructors, and finally expand their use college-wide.

Examples of possible professional development workshops

1. Short Course on Critical Thinking
2. Developing Critical Thinking Assessment Tools
3. Facilitating and Assessing Critical Thinking through Distance Learning
4. Facilitating and Assessing Critical Thinking through Service Learning
5. Using Technology to Facilitate and Assess Critical Thinking

The second component of the proposed plan is a college wide Community Engagement Campaign (CEC). The objective of the CEC initiative is to plan and conduct campus-wide critical thinking forums each year that reinforce the college’s commitment to enhancing students’ critical thinking skills. These forums will have activities that incorporate members of the college community as well as members of business and industry. These forums will address specific topics focused on improving students’ critical thinking skills, and will provide faculty with opportunities for sharing ideas among themselves as well as with members of business and industry. The organization and planning of these conferences can be accomplished by college- or campus-wide committees which will serve for one year. The QEP committee and the CTC will work in conjunction to decide on the topic and logistical details of each forum.

**TIMELINE**

A series of activities will be implemented throughout the 5-year period of the Critical Thinking QEP at Broward College:

1. Creation of the Organizational Structure
   a. QEP Oversight Committee
   b. Critical Thinking Community (CTC)
   c. Critical Thinking Forum Committee
2. Set-up of Marketing Campaign to raise college wide awareness (Community Engagement Campaign Committee)
3. Selection of the initial 21 trainers among faculty and staff members
4. Organization of Critical Thinking Forums
5. Organization of Professional Development Courses
6. Organization of Students Assessments

The following timeline of activities has been established for the period 2013 to 2018 with a year-by-year set of events which will be phased in starting in the fall of 2013:

### TIMELINE OF ACTIVITIES

<table>
<thead>
<tr>
<th>Year</th>
<th>Period</th>
<th>Phase</th>
<th>Activities</th>
</tr>
</thead>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Create the Organizational Structure</td>
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<td>Set up administrative and key faculty support</td>
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<td>Select the initial trainers among faculty members to attend training on CT</td>
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<td></td>
<td>Determine the training needs for the CTC</td>
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<td></td>
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<td></td>
<td>Organize First Critical Thinking Forum</td>
</tr>
<tr>
<td>Year 0</td>
<td>Fall 2012 – Winter 2013</td>
<td>Preparation</td>
<td>Start professional development workshops for the 21 selected faculty and staff</td>
</tr>
<tr>
<td>Year 1</td>
<td>Fall 2013 – Winter 2014</td>
<td>Preliminary</td>
<td>Organize Second Critical Thinking Forum</td>
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<tr>
<td></td>
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<td></td>
<td>Administer the first Critical Thinking Disposition Inventory Assessment (CCTDI) to new students in the pilot phase</td>
</tr>
<tr>
<td>Year 2</td>
<td>Fall 2014 – Winter 2015</td>
<td>Pilot</td>
<td>Conduct professional development training for larger groups of instructors expressing interest in implementing CT strategies in their classrooms</td>
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<td>Administer the CAT Critical Thinking Assessment Test</td>
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<td></td>
<td>Organize Third Critical Thinking Forum</td>
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<tr>
<td>Year</td>
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<td>Actions</td>
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<tr>
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<td>-------------------------------------------------------------------------</td>
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</table>
| Year 3    | Fall 2015 – Winter 2016 | Roll-Out | ● Expand professional development training to faculty college-wide  
● Start promoting the college as a reference for Critical Thinking (Branding Effort)  
● Update College Website to emphasize CT  
● Conduct assessment for students who went through the first two years of CT learning  
● Organize Fourth Critical Thinking Forum |
| Year 4    | Fall 2016 – Winter 2017 | Expand | ● Continue college-wide promotion  
● Start Public Relations campaign around the theme Critical Thinking  
● Expand Critical Thinking-enhanced course offerings for all freshmen  
● Organize Fifth Critical Thinking Forum |
| Year 5    | Fall 2017 – Winter 2018 | Expand, Promote, and Adjust | ● Expand Critical Thinking enhanced course offerings for all Broward College students  
● Assess the graduating students and their critical thinking abilities  
● Make adjustments based on assessment results  
● Organize Sixth Critical Thinking Forum |
| Capstone Year | Fall 2018 – Winter 2019 | Continuity | ● Administer Ennis-Weir Merged and International Critical Thinking Reading & Writing Test embedded in capstone courses  
● Organize Seventh Critical Thinking Forum  
● Organize final evaluation of the Critical Thinking QEP program |
ORGANIZATIONAL STRUCTURE: NARRATIVE

**QEP Director:** Provides coordination and oversight to all aspects of the QEP program, and supervises the Assessment Specialist. Specific duties include:

- Serves as the budget head for the QEP plan.
- Works with college administration to guarantee a successful launch and completion of all phases of the QEP program.
- Works with college administration to form and ensure continuity of the Critical Thinking Community (CTC), and the Community Engagement Campaign Committee.
- Provides support to the Critical Thinking Community (CTC) and the Community Engagement Campaign Committee.
- Plans and organizes appropriate training for the Critical Thinking Community (CTC).
- Works with Assessment Specialist in all assessment activities.
- Maintains all records and data on the project, and coordinates the production of a final report.
- Monitors SACS QEP standards and ensures Broward College is in compliance.
- Promotes and markets the project and the use of critical thinking throughout Broward College.

**Assessment Specialist:** responsible for scheduling and administration of all assessment activities. Specific duties include:

- Conducts statistical analyses for the QEP program, preparing reports on the results of the assessments.
- Works with QEP Director and the CTC on the development of rubrics for assessment.
- Prepares reports and presentations for on-campus and off-campus groups.

**Critical Thinking Community (CTC):** a college-wide cross-discipline community of no more than 21 members composed of BC faculty and staff, whose main goal is to acquire the appropriate knowledge to develop a variety of professional development workshops than can then be used by faculty to develop and improve students’ critical thinking skills in courses taught at Broward College.
Community Engagement Campaign Committee: a college- or campus-wide committee for the purpose of organizing and planning the yearly Critical Thinking Forums. The committee will work with the QEP Director and the CTC to define the topics and logistical details of each forum.

ORGANIZATIONAL STRUCTURE: GRAPHIC

ORGANIZATIONAL STRUCTURE

QEP OVERSIGHT COMMITTEE

COMMUNITY ENGAGEMENT CAMPAIGN COMMITTEE

CRITICAL THINKING COMMUNITY (CTC)

PLAN AND ORGANIZE CT FORUMS

DEVELOP AND DELIVER CT PROFESSIONAL DEVELOPMENT WORKSHOPS
RESOURCES

Budget Narrative

A. Staff and Office Supplies

**QEP Director:** Provides coordination and oversight for all aspects of the QEP program, and supervises the Assessment Specialist. This individual’s annual salary is estimated to be $70,000.00.

**Assessment Specialist:** Works with QEP Director and the CTC on the development of rubrics for assessment; responsible for scheduling and administration of all assessment activities; conducts statistical analyses for the QEP program preparing reports on the results of the assessments. Compensation for this individual was estimated based on two course releases per semester (Fall and Winter) based on academic rate of $42,000.00 This will result in an annual salary of $8,200.00

**Office Supplies:** Materials and supplies for each semester are estimated to be $350.00 ($700.00/year). All costs are based on historical costs for similar size operations.

B. Operational Budget

**Critical Thinking Forums:** This will be a yearly event that will provide a high level of integration, cooperation, and enthusiasm for the QEP program among the entire Broward College community, as well as offer a great learning opportunity for faculty, staff and students. Each forum is designed to host 250 attendees in one of our college’s facilities. Cost estimates includes $7,500.00 for guest speaker, $2,500.00 for heavy hors d’oeuvres, $120 for tables and table cloths, $400.00 in stipends for a panel of four, $1,000.00 in promotional materials and $1,000.00 for gifts to presenters, with a total estimated cost of $12,520.00. All costs are based on historical costs for similar size events.

**Critical Thinking Training Conference for CTC:** As part of their training the Critical Thinking Community (CTC) will travel to California to attend a four-day Conference on Critical Thinking hosted by the Foundation for Critical Thinking. At the conference, all 21 members of the CTC, the QEP Director, and the Assessment Specialist will be participating in workshops, seminars, and other activities to amplify their knowledge and understanding of Critical Thinking. Cost estimates includes conference registration at $625.00 per person, 12 hotel rooms at $165.00 per night for 4 nights,
$600.00 airfare per person, and $90.00 for meals per person with a total estimated cost of $38,855.00. All costs are based on historical costs for similar events.

**CTC Training Workshops:** As part of their training the Critical Thinking Community (CTC), the QEP Director and the Assessment Specialist, will take 2 online workshops designed by the Foundation for Critical Thinking. These workshops will introduce the different components of critical thinking, ways to build those components into the design of courses, and ways to make that design effective. Each workshop is estimated at $942.00 per person for a total estimated cost of $43,332.00. All costs are based on current costs of workshops.

**Professional Development Workshop Development:** These workshops will be used by faculty to improve their facilitation of students’ critical thinking skills in courses taught at Broward College. Estimates are based on the development of a main 4-week workshop, a 2-week introductory workshop, and 3 specialty workshops. The approximate development time of a 4-week workshop is 100 hours, and a 2-week workshop is 70 hours; using the highest pay scale for faculty of $38 per hour, the total estimated cost of development is $14,440.00. All rates are based on current estimates by the office of professional development.

**Professional Development Workshop Delivery:** Estimates are based on the development of a main 4-week workshop, a 2-week introductory workshop, and 3 specialty workshops. The approximate delivery time of a 4-week workshop is 80 hours, and a 2-week workshop is 50 hours; the highest pay scale for faculty ($38 per hour) will be used for calculation. During the pilot phase each workshop will be offered one time per term (Fall and Winter); during the expansion phase the main and introductory workshops will be offered 4 times per term (Fall and Winter) and the specialty workshops 2 times per term. The total estimated cost of delivery for the pilot phase is $10,640.00 and for the expansion phase $31,160.00. All rates are based on current estimates by the office of professional development.

**Student Assessments:** After the pilot and expansion phases, students will be assessed pre- and post-exposure to critical thinking-enhanced courses in order measure the efficacy of the QEP program. The pilot phase is expected to test approximately 2,400 students (40 pilot instructors, 2 sections of 30
students each) using the California Critical Thinking Disposition Inventory (CCTDI) online test at a rate of $9.12/test, plus a one-time fee of $210.00, for a total of $22,098.00. For the expansion phase a random sample of 2,000 students will be given the Critical Thinking Assessment Test (CAT) at a rate of $6.00/test, plus a yearly fee of $200.00, for a total estimate of $12,200.00. It is important to mention that during the capstone phase, students can be assessed using the Ennis-Weir Critical Thinking Essay Test which is available at no charge.

**Marketing:** The materials budget includes the production of flyers, posters and videos, as well as domain name and website maintenance. The initial launch of the marketing campaign is estimated at $1,138.00 during the Fall of 2013, and each term thereafter at approximately $500.00 ($1,000.00/year). All costs are based on historical costs for similar size operations.

<table>
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<th>Total QEP Program Budget</th>
<th>Estimates</th>
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<td>2012-2018</td>
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<tr>
<td>A. Staffing Budget</td>
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<tr>
<td>B. Operational Budget</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>$956,326.52</strong></td>
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Note: The Operational Budget and Staffing Budget spreadsheets seen below are also appended to this proposal in a PDF file; as such they can be opened and enlarged for ease of viewing.
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<th>Year</th>
<th>QEP Operational Budget</th>
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<td></td>
<td>1&lt;sup&gt;st&lt;/sup&gt; Critical Thinking Forum</td>
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<td>5&lt;sup&gt;th&lt;/sup&gt; Critical Thinking Forum</td>
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| Total | $481,726.52 |
## Staffing Budget

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### Year 1

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### Year 6

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**Total:** $474,000.00
**ASSESSMENT**

*Assessment Instruments*

Format for information listed in this section:

- Name of Instrument
- Source Contact Information
- Testing Purpose
- Appropriate Audience
- Outcomes linked (for the five recommended assessment instruments)

The Critical Thinking QEP team recommends the following five assessment instruments (numbered). Each recommended assessment lists the specific student learning outcome(s) which it may evaluate (see Desired Student Learning Outcomes section above). Following the five recommended assessment instruments is an annotated list of other assessment instruments available. The Assessment Specialist for the project (see Organizational Structure and Resources) should be responsible for determining further assessments as needed. The Assessment Specialist would also determine benchmarks or “targets of success” for tests administered more than once, and for making adjustments accordingly. Some outcomes (for example #s 2, 3, and 4) are also measured effectively by using faculty-designed rubrics.

1. **CCTDI OR THE CALIFORNIA CRITICAL THINKING DISPOSITION INVENTORY**

- Insight Assessment, 217 La Cruz, Millbrae, CA 94030; (650) 697-5628 Main; (650)692-0141 Fax; www.insightassessment.com; info@insightassessment.com
- Measures the attributes of truth-seeking, open-mindedness, analytical capacity, systematicity, inquisitiveness, confidence in reasoning, and cognitive maturity
- Community college students, college and university undergraduate students, graduate and professional school students, adults, and working professionals
- Directly linked to the following outcomes:
Outcome 1: Students develop skills in critical thinking, clear and thoughtful communication, creative expression, and honest open inquiry.

Outcome 6: Students develop confidence in their ability to reach well-reasoned, logically supported conclusions, and accept responsibility for such conclusions.

- Timeline: administered at beginning and end of student’s first full semester

2. **CAT CRITICAL THINKING ASSESSMENT TEST**

- Center for Assessment & Improvement of Learning, Box 5031, Tennessee Technological University, Cookeville, TN 38505; (931) 372-3252; (931) 372-3611; www.CriticalThinkingTest.org; www.tntech.edu/cat
- To measure those components of critical thinking and problem solving that faculty across disciplines think are most important; To assess a broad range of skills associated with critical thinking
- Community college students, college and university undergraduate students, graduate and professional school students
- Directly linked to the following outcomes:
  - Outcome 1: Students develop skills in critical thinking, clear and thoughtful communication, creative expression, and honest open inquiry.
  - Outcome 2: Students develop mastery of a specific discipline field and an understanding of the connections among disciplines, as well as a respect for differences among people and ideas.
  - Outcome 3: Students develop the ability to identify and clarify key concepts, problems, questions, and issues.
  - Outcome 4: Students develop the ability to identify and effectively utilize information relevant to a specific purpose.
  - Outcome 5: Students develop the ability to analyze and reflect upon relevant information.
- Timeline: administered at end of student’s second full semester
3. **ENNIS-WEIR CRITICAL THINKING ESSAY TEST**

- Critical Thinking Press and Software (formerly Midwest Publications), PO Box 448, Pacific Grove, CA 93950
- A diagnostic and research tool for analyzing the effects of a specific curriculum
- Designed for secondary and college students
- The Ennis-Weir is a general test of critical thinking ability in the context of argumentation: a complex argument is presented to the test taker, who is asked to formulate another complex argument in response to the first; the test is intended to help evaluate a person’s ability to appraise an argument and to formulate in writing an argument in response, thus recognizing a creative dimension in critical thinking ability. It is an open-ended, real-world test which has both instructional and research uses. It can be used as a diagnostic device to identify specific areas of reasoning or argumentation with which groups of students may need help. It also can be used as a device for evaluating effectiveness of instruction in informal logic, critical thinking, or reasoning. The Ennis-Weir assessment provides a structured and effective instrument for evaluating Critical Thinking as expressed specifically in writing in any discipline or field in the Broward College curriculum.
- Directly linked to the following outcomes:
  - **Outcome 1:** Students develop skills in critical thinking, clear and thoughtful communication, creative expression, and honest open inquiry.
  - **Outcome 2:** Students develop mastery of a specific discipline field and an understanding of the connections among disciplines, as well as a respect for differences among people and ideas.
  - **Outcome 3:** Students develop the ability to identify and clarify key concepts, problems, questions, and issues.
  - **Outcome 4:** Students develop the ability to identify and effectively utilize information relevant to a specific purpose.
  - **Outcome 5:** Students develop the ability to analyze and reflect upon relevant information.
Outcome 6: Students develop confidence in their ability to reach well-reasoned, logically supported conclusions, and accept responsibility for such conclusions.

- Timeline: administered as a capstone test, in the student’s graduating semester, and can be embedded in one of their classes; the test can be customized by faculty, and can be used for faculty training as well; because it can be customized “in house” it is readily adaptable for continued use

4. THE INTERNATIONAL CRITICAL THINKING READING & WRITING TEST

- The Foundation for Critical Thinking

- To assess students’ abilities to think in particular “disciplined” and skilled ways; To determine the extent to which students have and have not learned foundational critical thinking, reading and writing skills

- High school, college, and adult audiences.

- The International Critical Thinking Test is the perfect test to teach to. The structure and standards for thought explicit in the test are relevant to thinking in all departments and divisions. The English Department can test their students using a literary prompt. The History Department can choose an excerpt from historical writing; Sociology from sociological writing; etc. In one case, a section from a textbook may be chosen; in another, an editorial, in a third, a professional essay. In short, the writing prompt can be chosen from any discipline or writing sample. Moreover, since to make the test reliable the faculty must be intimately involved in the choosing of the writing prompt and in the grading of tests, faculty are primed to follow up on the results. Results are seen to be relevant to assessing instruction within the departments involved. The International Critical Thinking Essay Test is divided into two parts: 1) analysis of a writing prompt, and 2) assessment of the writing prompt. The analysis is worth 80 points; the assessment is worth 20. In the Analysis segment of the test, the student must accurately identify the elements of reasoning within a written piece (each response is worth 10 points). In the Assessment segment of the test, the student must construct a critical analysis and evaluation of the reasoning (in the original piece).
Each student exam must be graded individually by a person competent to assess the critical thinking of the test taker and trained in the grading called for in this examination. In evaluating student exams the grader is attempting to answer two questions:

a. Did the student clearly understand the key components in the thinking of the author, as exhibited in the writing sample? (Identifying Purpose, Question at Issue, Information, Conclusions, Assumptions, Concepts, Implications, Point of View)

b. Was the student able to effectively evaluate the reasoning, as appropriate, in the original text and present his/her assessment effectively? (Pointing out strengths and possible limitations and/or weaknesses of the reasoning in the writing sample).

- Directly linked to the following outcomes:
  
  Outcome 1: Students develop skills in critical thinking, clear and thoughtful communication, creative expression, and honest open inquiry.
  
  Outcome 2: Students develop mastery of a specific discipline field and an understanding of the connections among disciplines, as well as a respect for differences among people and ideas.
  
  Outcome 3: Students develop the ability to identify and clarify key concepts, problems, questions, and issues.
  
  Outcome 4: Students develop the ability to identify and effectively utilize information relevant to a specific purpose.
  
  Outcome 5: Students develop the ability to analyze and reflect upon relevant information.
  
  Outcome 6: Students develop confidence in their ability to reach well-reasoned, logically supported conclusions, and accept responsibility for such conclusions.

- Timeline: administered as a capstone test, in the student’s graduating semester, and can be embedded in one of their classes; this test may also be used in a pre- and post-test combination.

5. TER OR TEST OF EVERYDAY REASONING

- Insight Assessment, 217 La Cruz, Millbrae, CA 94030; (650) 697-5628 Main; (650)692-0141 Fax; www.insightassessment.com; info@insightassessment.com
• To assess an individual's or group's basic reasoning skills; To secure essential information as an element in a comprehensive employment application process; To gather program evaluation of reasoning and critical thinking skills.

• General population; Everyone with a sixth grade or higher reading level

• Directly linked to the following outcomes:
  Outcome 1: Students develop skills in critical thinking, clear and thoughtful communication, creative expression, and honest open inquiry.
  Outcome 6: Students develop confidence in their ability to reach well-reasoned, logically supported conclusions, and accept responsibility for such conclusions.

• This test can be made available to faculty to use as appropriate within their specializations and is recommended in order to facilitate the inclusivity of the QEP project.

OTHER ASSESSMENT INSTRUMENTS AVAILABLE:

CCTST OR THE CALIFORNIA CRITICAL THINKING SKILLS TEST

• Insight Assessment, 217 La Cruz, Millbrae, CA 94030; (650) 697-5628 Main; (650)692-0141 Fax; www.insightassessment.com; info@insightassessment.com

• To assess an individual's or group's critical thinking and reasoning skills; To gather data for program evaluation and research on critical thinking skills development

• For use with adults at community college, undergraduate, graduate, and professional school levels.

CRA OR CALIFORNIA REASONING APPRAISAL

• Insight Assessment, 217 La Cruz, Millbrae, CA 94030; (650) 697-5628 Main; (650)692-0141 Fax; www.insightassessment.com; info@insightassessment.com

• An intellectually challenging and highly reliable test specifically designed to measure those reasoning skills that are essential to success at the professional and managerial levels

• Individuals who are expected to have advanced reasoning skills, that is, those in the top 20% of the general population.

• May be used by faculty in specialized courses or fields related to the assessment
CORNELL CRITICAL THINKING TEST, LEVEL X

- Critical Thinking Press and Software (formerly Midwest Publications), PO Box 448, Pacific Grove, CA 93950
- Focuses primarily on the evaluative aspects of critical thinking, such as judging the reliability of reports of observations that other people make
- Appropriate for students in Grade 4 through college

CORNELL CRITICAL THINKING TEST, LEVEL Z

- Critical Thinking Press and Software (formerly Midwest Publications), PO Box 448, Pacific Grove, CA 93950
- Focuses primarily on the evaluative aspects of critical thinking, such as judging the reliability of reports of observations that other people make
- Appropriate for advanced high school students, college students, and adults

DCAT OR DEVELOPING COGNITIVE ABILITIES TEST

- Source Contact Information needed
- Measures learning characteristics and abilities that contribute to academic performance
- Designed for students in grades 2-12

HCTSR OR HOLISTIC CRITICAL THINKING SCORING RUBRIC

- Insight Assessment, 217 La Cruz, Millbrae, CA 94030; (650) 697-5628 Main; (650)692-0141 Fax; www.insightassessment.com; info@insightassessment.com
- Supports multi-modal assessment, for it provides evaluators with descriptors of four levels – two positive and two negative -- wherein they can categorize the critical thinking evident to them in projects, portfolios, presentations, essays, etc.
- People who are using reasoned judgment to problem solve and to make decisions about what to do or what to believe
NEW JERSEY TEST OF REASONING SKILLS
- I.A.P.C. Order Department, Montclair State University, Upper Montclair, NJ 07043; Phone: 973-655-4277; matkowskij@mail.montclair.edu; Fax (973) 655-7834
- Majority of the items dealing with deduction
- 5th grade to college level

QUANT-Q
- Insight Assessment, 217 La Cruz, Millbrae, CA 94030; (650) 697-5628 Main; (650)692-0141 Fax; www.insightassessment.com; info@insightassessment.com
- Measures reasoning skills in relation to quantitatively oriented problems
- Technologically and scientifically oriented persons or programs

WATSON-GLASER CRITICAL THINKING APPRAISAL
- The Psychological Corporation, 19500 Bulverde Road, San Antonio, Texas 78259; http://www.psychcorpcenter.com/pan_reqs/order.html
- The WGCTA produces a single score based upon the assessment of five critical thinking skills: Inference, Recognition of Assumptions, Deduction, Interpretation, and Evaluation of Arguments
- 9th grade and above

EMI: CRITICAL THINKING DISPOSITION INVENTORY
- Department of Agricultural Education and Communication, University of Florida, PO Box 110540, Gainesville, FL 32611-0540
- The EMI was developed from the Delphi Report.
- High school, college, and adult audiences.

SELECTED ASSESSMENT REFERENCES AND RESOURCES


Cheak, M. J. (1999). The development and field testing of an instrument designed to measure critical thinking in environmental education. Carbondale, IL, Marie Jaegle Cheak.


Facione NC, Facione PA, Sanchez CA. Critical thinking disposition as a measure of competent clinical judgement: The development of the California Thinking Disposition Inventory. Journal of Nursing Education 1994; 33: 345-350.


Stein, Barry and Ada Haynes. “Engaging faculty in the assessment and improvement of students’ critical thinking using the CAT.” Change (March/April): 45-49.


