A Digest of A&T’s Quality Enhancement Plan: Critical Thinking

Executive Summary

_Critical Thinking: The Joy of Learning to Make Informed Decisions_ is North Carolina Agricultural and Technical State University’s (NCA&T) proposed quality enhancement plan (QEP).

NCA&T’s QEP focuses on critical thinking – the ability to conduct inquiry, analyze, and make informed decisions. Learning how to think critically occurs within the context of students’ majors. The purpose is to improve student achievement of five critical thinking student learning outcomes. Participating departments will integrate the five student learning outcomes into key existing courses that are chosen by the departments themselves. In addition, informative student assessment and sustained professional development are major components of the plan. For the liberal arts, implementing the QEP means deliberately and explicitly teaching the outcomes in art and society, critiques in design studios, and art appreciation or analysis of period literature. In the sciences, implementing the QEP means deliberately and explicitly teaching the outcomes in the midst of engineering design, technical problem solving, and profession-based case study. In the classroom, instructors will teach students skills, such as analyzing an argument, judging their own arguments, and determining the credibility of data, and drawing inferences – all to develop skills to reach good decisions.

The QEP’s implementation is important to the larger University community because it will include about one-fourth of departments with undergraduates and will improve the quality of student thinking and decision making. The selection of the critical thinking topic involved the broader University community. Implementation planning involved the campus at large and key stakeholders within the University community, such as chairs, faculty, and students of participating departments. Should SACS approve the plan, its implementation will also involve the breadth of the University community. While a formal baseline of data will be established upon approval of the QEP, an introductory baseline of data related to student achievement was identified by the QEP Committee, itself a representative body, using existing University data, such as the results of the Wabash Study, and by University community input sessions, such as nominal group technique, surveys, and an importance-performance (gap) analysis.

Currently, NCA&T has an interdisciplinary general education core, University Studies (UNST), included in this QEP, which focuses on critical writing, analytical skills, global awareness, and inquiry. All of its courses are built upon critical thinking. It was determined by the administration that the academic departments need to integrate and address those same general education institutional student learning outcomes within their respective curricula, and the teaching and learning of these outcomes must be sustained over the students’ tenure at the University. Therefore, _Critical Thinking_ addresses a truly important and known need of the University and represents an earnest demonstration of NCA&T’s commitment to ongoing quality enhancement.

Proposed in the QEP is an action plan for implementation of _Critical Thinking_ over a five year span of time, and it includes an implementation timeline. The organizational structure of _Critical Thinking_ includes a facilitator, a QEP advisory committee, and assessment specialists. Guidelines for the fulfillment of their responsibilities are provided. Sustained professional development is planned for the teaching, learning, and assessment of critical thinking. In-class and standardized assessment of student learning outcomes is proposed that includes formative and summative assessments at designated benchmarks. A comprehensive QEP evaluation plan is proposed that is based on student achievement data and University community satisfaction data and QEP advisory committee feedback.

Money has been spent in advance of SACS’s visit in order to market the plan, and the University believes that the QEP budget of $1,743,426 over five years is adequate to support implementation and sustaining efforts including faculty incentives.
The Critical Thinking Student Learning Outcomes

The QEP will help instructors improve undergraduate students’ critical thinking skills by teaching the following in the classroom. First is listed the formal wording of the student learning outcome. Then skills are listed under each outcome that let the instructor know what should actually be taught. Given deliberately designed instruction that focuses on the development of students’ critical thinking skills, sustained over the course of students’ study at the University from freshman to senior years within the major/discipline, the following measurable critical thinking student learning outcomes will be developed.

Student Learning Outcome 1: Critical Thinking Basics
The student will analyze critical thought (ie: debate, writings, issues, problems) using the following criteria: (“clarity, precision, accuracy, relevance, significance, fairness, logic, depth, and breadth, evidentiary support, probability, predictive or explanatory power” (National Council for Excellence in Critical Thinking, 2009, no page/online)).

Skills to be taught in the freshman/sophomore classroom:
• Diagram arguments.
• Develop arguments.
• Judge one’s own and others’ arguments (arguments are clear, precise, accurate, relevant, significant, fair, logical, and in-depth...).

An example of how instructors might do this in the context of their own disciplines would be using case study. Students are taught about logical arguments, are assigned readings related to issues in the profession/discipline, and the next day they argue for or against the decisions made by the professionals they read about in the readings. Class discussion would be required, but less class time is taken up by assigning the reading for homework. Once the basics of arguments are taught, students would actually diagram the arguments they read, counter what was read, and critique themselves and classmates.

Student Learning Outcome 2: Working with Data
The student will evaluate information (eg: data) critically to judge decisions, problems, and conclusions.

Skills to be taught in the freshman/sophomore/junior classroom:
• Determine what information is needed in order to make a decision.
• Determine the usefulness of information.
• Determine the credibility of sources.

An example of how instructors might do this in the context of their own disciplines would be using role play. In journalism class, a student group must interview a “politician.” In the interview, the politician provides data to support an initiative that he or she is promoting. The group then meets, conducts some of its own research and decides on the credibility of the politician’s data. Perhaps the students conclude that the data was misrepresented and was designed to appeal to the emotions of constituents.

Student Learning Outcome 3: Problem Solving
The student will design the most appropriate and effective strategies to solve both disciplinary and interdisciplinary problems.

Skills to be taught in the sophomore/junior/senior classroom:
• Map strategies to solve problems.
• Brainstorm effectively and determine alternatives.
• Test a hypothesis (using inferential analyses in appropriate applications) and interpret descriptive data.

An example of how instructors might do this in the context of their own disciplines would be to design a data-based study in Market Research. However, a less obvious approach for a discipline, like Natural Resources and Environmental Design, could be a unit on land use. In the unit, land use rates and effects are researched, students reach conclusions about the data, and the instructor leads a brainstorming session to determine alternative ideas/plans for reducing the rate of land use.
Student Learning Outcome 4: Reaching Solutions, Conclusions, and Decisions
The student will *synthesize* findings to show patterns and develop conclusions and recommendations to solve both disciplinary and interdisciplinary problems.

**Skills to be taught in the sophomore/junior/senior classroom:**
- Identify patterns for use in decision making.
- Make decisions and conclusions based on reasoning or analysis.
- Know the difference between a decision and the quality of the decision.

An example of how instructors might do this in the context of their own disciplines would be to design a data-based study on the reliability of a newly designed electrical device. However, a less obvious approach for a discipline like the visual arts could involve determining how artists have used light in paintings over the centuries. Once these approaches are determined, students are assigned a painting that requires them to choose the appropriate use of light from among the trends that they identified.

Student Learning Outcome 5: Communicating
The student will *demonstrate* critical thinking skills through effective written and oral communication both within and across disciplines. (Return to Executive Summary)

**Skills to be taught in the freshman/sophomore/junior/senior classroom:**
- Use writing and reading skills to effectively communicate an argument.
- Use speaking skills to effectively communicate an argument.

For this outcome, over the four years that a student is on campus, all instructors must emphasize and provide feedback about improving the clarity of written and oral communication so that poor writing and speaking do not obscure ones argument. One good way to accomplish this on an ongoing basis in addition to instructor feedback, is through student peer feedback. Students self-critique and critique the arguments of peers including critiques about clarity.

Keep in mind that Vincent Childress made up the examples above. The critical thinking experts who will visit campus to provide professional development will have better ideas, and you, yourself, will likely begin to have better ideas of how to integrate critical thinking within your own discipline the more you consider the QEP.

Outcomes listed above are parallel to the Valid Assessment of Learning in Undergraduate Education (VALUE) (Association of American of Colleges and Universities, 2009) rubrics. Examples of instruction that address each student learning outcome above will be posted on a professional development support website. Growth targets will be established after the pilot study.

**Important Characteristics of the QEP**
- Explicit critical thinking instruction will be added to existing major courses within the participating departments' programs.
- It is up to the departments to decide in which courses the explicit critical thinking instruction should be integrated. Some departments may desire to integrate explicit critical thinking instruction into all courses, but others may choose carefully selected courses. However, the important consideration is that students need enough exposure to the instruction in order to truly improve their critical thinking skills over time.
- Instructors should not change the current course content as it relates to the discipline. Instead, they need to make it explicitly clear how critical thinking is used in the discipline and redesign activities to focus on both course disciplinary content and explicit critical thinking.
- Instructors will need to have more student engagement in class if their courses are currently, mostly lecture.
- There will be more student assessment required of the instructor if the instructor's course currently, mostly uses multiple choice, written testing.
- Pending final approval of the Chancellor, there are four Assessment Specialists planned in the budget. These specialists (1) help instructors understand how to grade in-class assignments that are measures of critical thinking skills, (2) help coordinate (and participate in when appropriate) portfolio review, and (3) help instructors and departments administer and grade the standardized critical thinking tests (CAT).
• The standardized critical thinking test is only administered three times: (1) to incoming freshmen, (2) to end-of-year sophomores, and (3) to outgoing seniors.
• Departments are to use data results to improve their programs regarding the teaching and learning of critical thinking.
• Adequate and sustained professional development will be provided by outside experts on critical thinking.
• Appendix H in the QEP document shows a fictitious example of how one department has planned to integrate explicit critical thinking into its program.

Some Logistics
• The departments’ participation will be phased in over five years, and student participation will be phased in over five years. For example, the fall semester of the 2010-2011 academic year will provide professional development on how to plan and teach critical thinking within existing courses within the discipline. The first four or six departments to implement the QEP will be the first to take professional development. The first four departments will also have the fall semester to plan for implementation. In the spring semester of the 2010-2011 academic year, the departments will want to make sure that freshmen and sophomores are the first students to get exposed to QEP related instruction. The first year and a half of instruction is done by the first four departments as a pilot study. The third year, two more departments begin to implement the QEP. The fourth year two more departments come on board, and the fifth year, the remaining departments come on board. Departments continue adding junior and senior courses as phase-in continues over the five year period.
• In UNST, Critical Writing and Analytical Reasoning teach those same skills that are specified to be taught through the QEP. For now, UNST courses will continue to teach as normal. In light of the UNST taskforces, if the general education core ends up changing, this should not affect a department’s plan to provide explicit critical thinking instruction from freshman year to senior year in the major/discipline.
• There will be a QEP Coordinator for the University who will help departments and instructors in every way.
• The first year and a half will be a pilot study. Therefore, the first four departments to be drawn for participation with 80 or more students will, technically, be involved in the pilot study.

Important Notes
Vincent Childress, on behalf of the QEP Committee, has met with the selected departments to explain the QEP to in more detail, and second, and most importantly, solicit final feedback from them in order to help fine tune the QEP. In a second meeting with each individual department, Vincent Childress will gauge the extent to which department faculty buy in to the plan.

Near the end of January, the QEP Marketing Committee will begin to aggressively market the QEP to both the whole campus and to department instructors and students in classes. SACS will be interested to see if the campus understands what the QEP is, and it will be especially interested to see if department’s instructors and students understand it. Therefore, the QEP Marketing Committee will be sending Vincent Childress to make presentations to faculty and students throughout this current semester.

From April 6th through 8th, SACS will visit campus to see if it likes the QEP, determine what departmental involvement (and the involvement of others) has been. The SACS visiting team will want to interview chairs, instructors, and students and others.

The complete draft of the QEP is located at http://www.ncat.edu/~childres/QEP.pdf. It is downloaded better using Mozilla web browser, Firefox.

Before being sent to SACS on February 15, the QEP needs to be approved by the upper level administration.