

Part V.
Quality Enhancement Plan Impact Report
for Lord Fairfax Community College

Executive Summary

The Quality Enhancement Plan (QEP) of Lord Fairfax Community College (LFCC), entitled “Seeking the Ox: Developing Critical Thinkers at LFCC,” aims to create a culture of critical thinking (CT) which permeates all aspects of the College community. The outcome of a critical thinking culture will be improved critical thinking skills among students. These skills include the ability to:

- Explain, analyze, and synthesize what we see, hear and read
- Use creativity to discover multiple and diverse approaches to issues
- Find relevant information to address tasks and problems
- Evaluate claims and evidence to draw reasonable conclusions
- Justify conclusions and solutions
- Apply concepts to real-world problems
- See connections and patterns both within disciplines and across disciplines
- Reflect on our own thinking and learning.

The title of LFCC’s QEP is adapted from a series of traditional Buddhist images showing a young man’s search for an ox (representing knowledge) and the process by which the ox becomes a part of the seeker’s world. This theme highlights the multiple contexts and extensive time required to develop critical thinking skills across the curriculum.

The QEP plan promotes cultural change through three goals: fostering awareness and understanding of CT among college faculty and staff in all disciplines and units, enhancing critical thinking skills in all courses and programs, and encouraging critical thinking practices outside the classroom. Activities to support these goals include a campus-wide professional development plan, a critical thinking mini-grant program to support innovations, and print and electronic resources for faculty and staff. In addition, the College will infuse at least one of six general CT learning outcomes into all courses. The College will implement institutional and course-based assessment of CT, using three nationally normed instruments, as well as faculty developed assessment tasks. Finally, the College will promote a series of extra-curricular activities to highlight CT outside the classroom.

Initial Goals and Intended Outcomes

The QEP Plan includes three broad goals, each accompanied by specific objectives, measures, and target outcomes. A summary of these objectives, measures, and target outcomes is included in Table 1.

Table 1: QEP Goals, Objectives, Measures, and Intended Outcomes

Objective	Measures	Outcome/Target
Goal 1: Foster awareness and understanding of critical thinking among College employees, both full-time and part-time, in all disciplines		
1.1 Promote awareness of critical thinking and active/ collaborative teaching strategies to support critical thinking instruction.	Faculty Annual Evaluation	80% of faculty will report emphasis on critical thinking instruction
	Community College Survey of Student Engagement	Active and Collaborative Learning scores will improve by 2011
1.2 Support innovation in instruction and assessment via instructional mini-grants	Number of projects funded and project deliverables/evaluation	Successful projects will be shared and replicated
1.3 Train faculty to implement a nationally recognized critical thinking assessment tool, the CAT.	Number of faculty participants, workshop evaluations, and follow-up discussions	At least 25 full-time faculty will receive training Scoring process will enhance reflection and classroom instruction
Goal 2: Enhance critical thinking skills in all LFCC degree, certificate and workforce development programs.		
2.1 Incorporate critical thinking learning outcomes and assessments in every course at the college	Number of courses with CT learning outcomes and course-based assessment of those outcomes	All courses will teach and assess critical thinking skills
2.2 Develop a critical thinking focus in SDV courses, which are required of all degree-seeking students at the college.	Development of SDV modules/ activities for CT	SDV courses will lay a foundation for the emphasis on critical thinking throughout the college
	Student performance on designated assessment (part of the SDV final)	More students will complete the CT component of the SDV common final correctly.
Goal 3: Encourage critical thinking practice outside the classroom.		
3.1 Students will practice critical thinking at events and learning opportunities held at every location every semester.	Number of activities/calendar of events	Students will extend critical thinking outside the classroom
	CCSSE scores	CCSSE Scores will improve and/or exceed national benchmarks in 2008 and 2011
3.2 LFCC will develop an advising model that includes training in critical thinking	Advising model developed, evaluated, and improved	Students will practice critical thinking through the process of advising
	CCSSE scores (Support for Students, Faculty Student Interaction)	CCSSE scores will improve in 2008 and 2011 and/or exceed national benchmarks

The plan also adopted the following six student learning outcomes from the Virginia Community College System (VCCS) Core Competencies. LFCC Students will be able to:

- (1) discriminate among degrees of credibility, accuracy, and reliability of inferences drawn from given data;
- (2) recognize parallels, assumptions, or presuppositions in any given source of information;
- (3) evaluate the strengths and relevance of arguments on a particular question or issue;
- (4) weigh evidence and decide if generalizations or conclusions based on the given data are warranted;
- (5) determine whether certain conclusions or consequences are supported by the information provided; and
- (6) use problem solving skills.

The College planned to assess these outcomes with three measures: (1) the California Critical Thinking Skills Test (CCTST); (2) the Community College Survey of Student Engagement (CCSSE); and (3) individual course assessments.

Changes Made and Justification

The College made some adjustments to the implementation of the QEP, but these are relatively minor in nature. These include a change in the instrumentation and an increase in staffing support.

Change in Instrumentation:

LFCC planned to use the California Critical Thinking Skills Test (CCTST), but this instrument was dropped in 2009 as an assessment measure. It was selected because the VCCS used it in 2005 and 2006 as a measure of critical thinking competency system-wide, providing the College with baseline data. In 2008 and 2009, College faculty gained experience with a second test, the Critical Thinking Assessment Test (CAT), developed by Tennessee Technological University's Center for Assessment and the Improvement of Learning. After looking at both assessment instruments, the QEP Team decided to use the CAT for a variety of reasons.

First, there was an indication that the Virginia Community College System would not continue its contract with Insight Assessment, which administers the CCTST. With no requirement to report CCTST data to the VCCS, there was no need for the College to continue this assessment.

Second, while both the CCTST and the CAT provide data relevant to student critical thinking abilities, the skills assessed by the CAT align more closely and clearly with the QEP student learning outcomes. This alignment aids faculty and staff when identifying outcomes.

Third, CAT results may be broken down by program and location where there is a sufficient response rate. This helps the College identify promising or best practices and areas for enhanced effort in meeting goals.

Fourth, LFCC faculty found the CAT data more meaningful and useful in relation to instruction. The instrument is a short-answer test, where the CCTST is multiple choice, and it is scored directly by faculty. The scoring workshop provides professional development experience for faculty, who must assess evidence of critical thinking in student responses. CAT results are checked for accuracy by staff at Tennessee Tech's Center for Assessment and Improvement of Learning and normed against a national cohort of two- and four-year schools.

Finally, the pricing of the two tests is comparable. The QEP budget could support full administrations of one test or the other on an ongoing basis, but not both.

Increase in staffing support:

When the QEP was finalized, the SACSCOC On-Site Committee recommended that LFCC “demonstrate that it has provided for adequate staff and/or faculty time for the initiation, implementation, and completion of the QEP.” At that time, the College did not have a full-time director of planning and institutional effectiveness. Therefore, the plan called for the College to hire an assistant QEP director during the third year, with the aim of providing the faculty and QEP director with additional data analysis. Instead, the College increased its commitment and hired a full-time director of planning and institutional effectiveness with expertise in statistics and data analysis, as well as staff support. This director was able to provide guidance and support for the QEP and therefore the proposed assistant QEP director position was eliminated.

Impact on Student Learning and/or the Learning Environment

Outcome results achieved through the QEP implementation had a clear impact on student learning and the learning environment at LFCC. This information is presented for each goal in the following sections.

Goal 1: Foster awareness and understanding of critical thinking among College employees, both full-time and part-time, in all disciplines.

Summary of outcomes achieved:

- By 2010, 90% of faculty documented in their annual personnel narratives that they placed an emphasis on critical thinking (Objective 1.1)
- CCSSE results for the benchmark “Academic Challenge” exceeded the national benchmark in 2008 and 2011, showing strong improvement from the 2005 baseline (Objective 1.1)
- CCSSE results for the benchmark “Active and Collaborative Learning” showed marked improvement from the 2005 baseline (Objective 1.1)
- Mini-grants were funded for each target year of the QEP. Of these, three projects were integrated as on-going activities at the College (Objective 1.2)
- LFCC exceeded the target of 25 full-time faculty members trained to assess the CAT test (Objective 1.3)

Goal 1 reflects the College’s effort to create a culture of critical thinking among faculty, staff, and administrators. As part of their self-narratives submitted during the annual evaluation process, faculty were invited to include evidence of how they placed more emphasis on critical thinking in the classroom (Objective 1.1). Academic deans at Middletown and the associate vice-president of instruction at Fauquier reviewed the faculty narratives and determined which instructors emphasized critical thinking instruction in the previous academic year. In 2009, supervisors found that 51 of 66 (77%) full-time instructors included an emphasis on critical thinking in instructional activities. In 2010, the number increased to 62 of 68 (91%).

LFCC participated in the CCSSE in 2005, 2008, and 2011 and the Survey of Entering New Student Engagement (SENSE) in 2009. While it is recognized that surveys of student engagement are not direct measures of student learning, the results offer insight into student behavior and perceptions of classroom experiences related to the development of critical thought. In particular, LFCC faculty and staff examined

benchmark CCSSE scores for the benchmark “Academic Challenge” (AC) and “Active/Collaborative Learning” (ACL), as well as related individual questions. The College was interested in classroom practices which promote intellectual behaviors, such as analysis, synthesis, evaluation, and application. Table 2 documents progress in the CCSSE benchmarks over the course of the QEP.

Table 2: CCSSE Benchmarks Related to Objective 1.1

CCSSE Benchmark	LFCC 2005	LFCC 2008	Other Medium Colleges, 2008	LFCC 2011	Other Medium Colleges, 2011
Active and Collaborative Learning	45.2	48.8	49.7	47.6	49.9
Academic Challenge	46.3	49.9	49.8	50.2	50.0

In addition to these two benchmarks, LFCC monitored progress on question 5a of the survey: “During the current school year, how much has your coursework at this college emphasized the following mental activities? (a) Memorizing facts, ideas, or methods from your courses and readings so you can repeat them in pretty much the same form.”

In 2007, QEP consultant Dr. Barry Stein of Tennessee Technological University suggested that the response to CCSSE question 5a bears an inverse relationship to critical thinking behaviors. While memorization is foundational and important, it is nonetheless the lowest level of thinking skills. Boosting critical thought requires movement away from assessment that is rooted primarily in memorization and repetition. Therefore, the LFCC target result for this question was a declining mean. The mean was 2.81 in 2008 and 2.76 in 2011. While not a marked decrease, the decline does suggest movement in the right direction.

The CCSSE results in 2005 and 2008 guided the creation of multiple QEP faculty development sessions. Sessions offered at the College include the following: Critical Thinking in Every Classroom Workshop (August 2007), Faculty Analysis of CCSSE Data/The Vocabulary of Critical Thinking (March 2008), CCSSE Updates for All Faculty and New Faculty Workshops (August 2008), CCSSE Data for Adjunct Faculty Workshop (November 2008), and Adjunct Academy: Blooming Tests, or Assessing for Higher Order Thinking Skills (March 2009).

The second objective (1.2) involved offering instructional mini-grants to faculty to support innovative instruction and experiences in critical thinking. The success of the program is measured by funding and by the number of awards, but also by improvement in the CCSSE Academic Challenge and Active/Collaborative benchmarks. Information about the mini-grants and other models of innovative and exemplary instruction in critical thinking, including outcomes, were collected and shared via the electronic QEP Archives, which are available on the College’s Intranet.

Three mini-grants were awarded to LFCC faculty to improve student experiences in analysis, synthesis, application, problem solving, and evaluation. The first, “Critical Thinking in Psychology Rubric and Modules,” was awarded in 2009 to Professor Elaine Cassel. This project involved the development of four modules and an analysis template for psychology courses, along with an assessment rubric. The modules and rubric are posted in the QEP Archives. The second mini-grant was awarded for the years 2008 to 2013 to Professors Kerry McKenna and Brenda Wiens for the “LFCC Science Symposium.” This project offered first-year science students the opportunity to design research and report findings for judging. The project expanded each year to include more students and collaboration with faculty and students outside of the sciences. Versions of the Science Symposium Rubric are located in the QEP Archives.

The third mini-grant entitled “Millennial Essay Contest” was awarded in 2010 to Professor Doug Lamborne and offered students a chance to read, analyze, and respond to Mark Bauerlein’s provocative text “The Dumbest Generation.” Student judges developed an evaluation rubric and reviewed entries. Each of these projects engaged students and provided them with additional opportunities inside and outside of the classroom to analyze, apply, and synthesize concepts.

Regarding Objective 1.3, the College offered professional development to faculty through CAT scoring workshops. These full-day workshops promote faculty discussion of student performance and skills in a cross-disciplinary setting. In May 2008, two full-time faculty attended the “Train the Trainer” Scoring Workshop in Nashville, Tennessee. In August 2008, these two faculty led LFCC’s first Scoring Workshop session that included 10 additional full-time faculty. Since then, a total of 27 full-time faculty have participated in at least one scoring workshop, along with 20 part-time/adjunct faculty, three administrators, and two staff members, exceeding the initial goal.

One positive but unanticipated outcome of the implementation of Goal 1 was the generation of a bidirectional feedback loop of dialogue about assessment, professional development, mini-grants, and instructional innovations. The excitement and enthusiasm that were generated led to increased research efforts, presentations, and publications by LFCC faculty. Out of this emerged mini-grants for assessment of critical thinking in writing and creation of the Critical Thinking in Writing Rubric. Another outcome was that the College held two Symposia on College Thinking and Writing for English. These included faculty participants from two- and four-year colleges and high school teachers. Another outcome was the publication of an article entitled “Integrating Critical Thinking into the Assessment of College Writing” in the December 2012 issue of *Teaching English in the Two-Year College*.

Goal 2: Enhance critical thinking skills in all LFCC degree, certificate and workforce development programs

Summary of outcomes achieved:

- By 2009, every course in the college had a designated critical thinking learning outcome selected from the six VCCS/QEP student learning outcomes. (Objective 2.1)
- SDV courses include a critical thinking question on a common final exam. The results suggest that there has been improvement between 2008 and 2011. (Objective 2.2)

During the development of the QEP in 2007-2008, all courses at the college reviewed and revised course content summaries and stated learning outcomes. Under objective 2.1 of the QEP, the College mandated that all courses include one of the VCCS critical thinking learning outcomes. Each of these outcomes would be assessed in each course over a three year cycle. In 2009, the QEP Coordinator reviewed results for all courses assessed in the 2008-2009 cycle. While this review proved enlightening, it was apparent that organizing and using the course data for professional development/improvement across the College is a daunting task. By 2009-2010, the College began to enhance the assessment and evaluation of programs. The goal of the QEP therefore shifted somewhat to providing data for the assessment of critical thinking learning outcomes and assessments at the program level. These outcomes will be evaluated through the on-going process of program assessment.

An example of how this is taking place is the Associate of Arts and Sciences degree in education program, which includes the learning outcome that students will recognize developmentally appropriate

instructional strategies and provide a formal, written analysis of their effectiveness. In 2011, this program was reviewed and 73% of students met the criteria for success, documented with a course-embedded project. The target was 80%, so instructional improvements were made for using additional video case studies. Data are collected for each course and performance on this outcome will be re-evaluated in the next program review cycle.

Regarding Objective 2.2, the QEP sought to lay a foundation for critical thinking skills in SDV courses. SDV courses introduce students to the culture of the collegiate experience, including personal development and academic skills. An SDV course is required of all degree-seeking students and most students take the course in their first semester or the first year.

As a result of the QEP, SDV faculty began collecting and sharing critical thinking activities and best practices. In addition, a “critical thinking” question was included on the common final exam for SDV 100. This question is a logic problem that addresses a specific challenge faced by many incoming students. Students have to read, process, and analyze the question in order to answer it effectively. This is in contrast to other questions, which require listing or providing a personal response to course activities. SDV faculty felt that the new question illustrates for students the types of critical thinking challenges they should expect in college.

The percent of students correctly answering the critical thinking question on the SDV 100 final exam went from a low of 74% in fall 2008 to a high of 86% in spring 2011. There appears to be a clear pattern. Student results are lower in the fall and summer, when more first time students take the course. Results in the spring tend to be higher, when students are generally in their second semester. Over a four year period, the spring scores did show an overall increase, as did the summer scores. Fall 2010 scores, however, dipped in the final year.

In fall 2011, leadership in the SDV course determined that a change was needed, particularly in the text. A new text entitled “The Community College Experience” by Amy Baldwin was selected. One factor in the selection of this text was the accompanying workbook of critical thinking ideas for instructors. This supports the College’s QEP and the goal of increasing the Active/Collaborative Learning benchmark on the CCSSE. To promote the importance of critical thinking at LFCC, wording was added to the common syllabus for SDV 100 about the College’s “Critical Thinking Policy.” This states that “LFCC is an environment that is centered on the idea of effective critical thinking. All enrolled students are expected to demonstrate critical thinking skills and strive to approach all coursework in a manner that promotes thinking in new and challenging ways.”

Goal 3: Encourage critical thinking practice outside the classroom

Summary of outcomes achieved:

- Activities are offered at each location each semester that encourage critical thinking skills. Required SDV activities support participation in critical thinking. (Objective 3.1)
- A new advising center model is in its first full year of implementation at the College in which advisors help students think critically about academic planning solutions. (Objective 3.2)
- The CCSSE means for Faculty/Student Interaction and Support for Students improved over 2005 baseline scores. (Objective 3.1 and 3.2)

Regarding Objective 3.1, the College aims to support critical thinking in contexts that extend well beyond the classroom. To foster the sorts of experiences that support critical thinking outside the classroom, the QEP again turned to SDV 100 and to the Mini-Grant program.

Since 2009, students in SDV 100 have been required to complete a “breadth of experience” component. This component includes, at a minimum, two activities at the college. These outside activities include workshops, guest speakers, sports events, cultural events, and others, with the list increasing each year. Through collaboration between sponsoring faculty and SDV instructors, many of the “breadth of experience” activities have added critical thinking elements. These activities include Global Awareness Day panels and presentations in March, a Martin Luther King essay competition in January, the LFCC Science Symposium, Faculty Panel discussions (including uses/abuses of Wikipedia and Faculty Research), a variety of workshops ranging from budgeting to grammar skills, and Black History Month events in February.

In 2012-13, the College put in place a new advising center model at the Middletown campus that involves drop-in advising, with faculty and staff working at various times (Objective 3.2). Therefore, the original intent of the QEP to foster CT by building advisor/student relationships over time has changed. There is still a focus in advising on CT, but it is a focus on problem solving, which is part of the definition of CT the College developed and part of the CAT testing program. The advising process identifies problems and needs and the advisor works with the student to solve the problems and evaluate solutions.

While not all interactions are in depth, multiple observations by the QEP Director suggest that faculty and staff advisors now lead students to consider solutions for themselves, as opposed to doing it for them. While the impact of the new model is difficult to measure, data have been collected in the LFCC Current Student Survey about the advising experience before and after the model was put in place. Approximately 85% of respondents in fall 2012 rate their experience with the academic advising center as very good or good, up from 50% in fall 2011.

Table 3: CCSSE Benchmark Scores for Faculty/Student Interaction and Support for Students

CCSSE Benchmark	LFCC 2005	LFCC 2008	LFCC 2011
Faculty/Student Interaction	48.9	47.9	51.1
Support for Students	46.2	50.6	48.7

Student Learning Outcomes (VCCS 2.1-2.6)

Summary of outcomes achieved:

- Student performance on the CAT exceeded national norms in each skill cluster and overall scores (2008, 2009, 2010, 2011, and 2013)

LFCC administered a pilot version of the CAT in 2008. In 2009-2011, the CAT was administered each year, and the college plans to continue biannual testing in the future. LFCC students at the end of the sophomore semester have scored higher than national norms each year for all critical thinking categories. The number of students who took the test in 2011 is slight higher because an additional cohort of nursing students participated at the request of nursing faculty.

Students take the CAT test in the last quarter of the spring semester (April), generally their second semester at the College. As Table 4 suggests, LFCC students have consistently scored above national norms for two-year schools for the four skill clusters and overall.

Table 4: Performance on the CAT by Skill Cluster

Skill cluster	Nat. Norm	2008 N	2008 mean	2009 N	2009 mean	2010 N	2010 mean	2011 N	2011 mean	2013 N	2013 mean
Evaluate & interpret information	8.52	49	9.45	146	9.21	196	9.13	231	10.48	189	9.41
Problem Solving	9.15	49	10.26	146	10.08	196	9.9	231	11.25	189	9.78
Creative Thinking	4.2	49	5.01	146	4.95	196	5.01	231	5.28	189	4.99
Effective Communication	7.26	49	8.52	146	8.67	196	8.52	231	9.63	189	8.93
Total Score	13.48	49	15.25	146	14.96	196	14.81	231	16.51*	189	15.06

Table 5 provides data on some selected CAT questions that are directly related to QEP efforts at LFCC. The results suggest that students are able to separate relevant from irrelevant information when solving a real-world problem and to use and apply relevant information to evaluate a problem. However, more opportunities need to be available in the learning environment to support student abilities to provide alternative explanations to spurious data, identify suitable solutions for a real-world problem using relevant information, and identify and explain the best solution for a real-world problem.

Table 5: Performance on the CAT by VCCS Competency-Related Question

Skill Assessed by CAT Question	Sept. 2008	May 2009	May 2011	May 2013
Q6: Provide alternative explanations to spurious data	1.22	1.24	1.33	1.34
Q10: Separate relevant from irrelevant information when solving a real-world problem	3.27	3.08	3.30	3.08
Q11: Use and apply relevant information to evaluate a problem	1.22	1.16	1.25	1.13
Q13: Identify suitable solutions for a real-world problem using relevant information	0.94	0.90	1.10	0.84
Q14: Identify & explain the best solution for a real-world problem using relevant information	1.80	1.71	2.23	1.94

**Faculty scores of two questions in the 2011 administration were considered unusually high according to the Tennessee Tech accuracy check. Therefore, the overall mean for this year may not be a reliable indicator of student performance. The accuracy check provided additional material for professional development for the May 2013 scoring workshop.*

Reflection

Over the course of the QEP process at LFCC, faculty have learned several important lessons. First, faculty must carve out space for cross-disciplinary discussion of teaching and learning, despite a host of pressures that might otherwise keep them in their disciplinary silos. Collaboration and discussion across disciplines created energy for instructional innovation throughout LFCC's faculty. From the beginning, the QEP director prepared an email discussion called *Critical Conversations* to engage faculty with data, resources, current research, articles, and information about ongoing activities. *Critical Conversations* served as a catalyst for professional development and follow-up for faculty from 2008 to 2013. The LFCC faculty met in May 2013 to create a framework for continuing the collaboration through discussion groups and a research panel beyond the timeframe of the QEP.

LFCC faculty have also expressed a commitment not to underestimate the learning potential of their students, regardless of program or level. Faculty have challenged students to go beyond expectations through new and demanding assignments, SDV critical thinking and activity components, the LFCC Science Symposium, the Celebration of Student Thinking and Research, and faculty participation in and follow-up activities from the Symposium on College Thinking and Writing. While results from the CCSSE, CAT, and other measures suggest that these activities have been effective, perhaps the most meaningful measure comes from the assessment of graduates. In the LFCC Graduating Student Survey, students are asked to identify a single course or project that contributed to the development of their critical thinking skills. Respondents to the 2010 survey mentioned over 60 specific courses by name, along with 37 different instructors. In many cases, the responses referred to a classroom assignment that is an effective practice component documented for the QEP archives. The extent and variety of graduating student feedback confirm what the CCSSE, CAT, and other measures have suggested, that LFCC is now cultivating an environment which teaches, encourages, and celebrates critical thinking.