Tennessee Higher Education Commission

2012-13 Performance Funding Report

Standard 1F: Assessment Implementation

Sustaining QEP
Year Two
2012-2013

I. Review of UTC's QEP: Goals, Objectives, and Activities of Year Two

The University of Tennessee at Chattanooga (UTC) has completed the second year of a five-year Quality Enhancement Plan (QEP), ***ThinkAchieve: Creating Connections***, aimed at promoting student critical thinking skills. Critical thinking is a fundamental skill demanded by employers and deemed essential for global and social development and prosperity (AACU, 2004; Hart, 2009). Students competent in critical thinking will achieve higher levels of success, fueling their achievements in academics, their careers, and their lives. The strategy is to develop and nurture critical thinking skills across the UTC experience: freshman orientation, general education courses, courses in the major, and co-curricular activities. Students are expected to improve these skills progressively as they practice and apply them over the entire university experience.

Goals and Objectives. The **goal** for the project is that, *over the course of their university experience, UTC students will increase their overall critical thinking skills as exhibited by the ability to identify, evaluate, and interpret information; solve problems and create innovative solutions through creative thinking; and communicate ideas and information effectively.*

To achieve this goal, students need to attain five student learning outcomes (**objectives**). They will:

1. Identify, evaluate, and interpret information by raising pertinent questions and identifying uncertainties,
2. Solve problems by determining limitations, making connections, and prioritizing the potential solutions,
3. Create innovative solutions to problems through creative thinking,
4. Communicate ideas and information effectively, and
5. Seek ongoing improvement to integrate knowledge and skill through reflection on their thinking and learning processes.

Three program components support development of these outcomes. A review of Year Two **activities** undertaken to help the project progress toward its goal and objectives follow (and are outlined in the implementation plan).

Component 1. Introduction: Orientation is designed to introduce incoming freshmen to critical thinking and problem-solving, foster a community of learning, and create an expectation of academic rigor to help prepare them for university study. In small group discussion sessions at new student orientation, trained faculty facilitators present incoming freshmen a critical thinking exercise and then use the group process to explore Wolcott's (2006) *Steps for Better Thinking*.

Orientation Activities. In Year Two, a QEP committee revised discussion session content guided by assessment data collected from participants and facilitators last year. Facilitators received training in May and freshmen orientation began in June. The first four orientation sessions constituted pilot sessions, and based on facilitator and student feedback, the content was slightly revised. The remaining 24 orientation sessions are in progress and are being assessed.

Component 2. In the Classroom: Curricular Integration promotes critical thinking and problem-solving throughout the undergraduate curriculum. In this component, development opportunities are offered to provide information and support to departments, faculty, and staff for the integration of critical thinking activities that help students improve their skills.

Faculty Development Activities. Year Two activities continued as in Year One with extensive faculty development offerings -- seminars, webinars, workshops, retreats, faculty learning communities, and book clubs -- to support the development, delivery, and assessment of critical thinking strategies. New faculty members were introduced to the QEP at faculty orientation, and faculty members were trained to introduce to new students critical thinking skills at freshmen orientation. Other faculty and staff participated in CAT grading sessions on campus.

The *ThinkAchieve* grants program continued this year and culminated in a showcase of teaching and learning scholarship at UTC's Research Day, UTC's Instructional Excellence Retreat, and at regional teaching and learning conferences. QEP online resources – the *ThinkAchieve* website, Facebook page, and Twitter postings – were actively updated and maintained this year.

New in Year Two was the design and implementation of the Faculty Fellows and Faculty Awards programs. Three Faculty Fellows were selected to lead a group of faculty learners in a year-long program on a teaching and learning topic related to critical thinking. Three additional faculty members were selected to receive a Faculty Award to recognize outstanding and innovative teaching that supports the goals of *ThinkAchieve*.

Component 3. Beyond the Classroom: Experiential Learning provides students with opportunities to participate in "learning by doing" through experiences beyond the classroom on which they critically reflect. Student participation in experiential learning activities is encouraged, tracked, and rewarded. Students and faculty propose activities for approval, and approved activities are assigned a point value based on the extent of work, critical thinking, and problem-solving effort required. Students receive awards and recognition based on a number of points earned.

Experiential Learning Activities. The Beyond the Classroom program made substantial progress in Year Two. Faculty and students initiated experiential learning contracts, participated in applied learning activities, completed project reflections, and earned a range of possible points. Students also attended campus and community events, completed a short reflection card, and earned a smaller number of points. The first set of semester awards was given to students in a banquet this spring. The program was heavily promoted in Year Two through extensive meetings with departments, faculty, staff, students, and community partners. The *ThinkAchieve* website's Beyond the Classroom page was also actively updated and maintained this past year.

II. Year Two Assessments

The evaluation of the QEP focuses on five elements of critical thinking (represented by five student learning outcomes) and five overall measures of critical thinking (to provide a more comprehensive examination) as outlined in the assessment plan. Student performance is assessed using cognitive and non-cognitive measures: the Critical Thinking Assessment Test (CAT), experiential learning data, the ETS Proficiency Profile Exam (PPE), the National Survey of Student Engagement (NSSE), the Faculty Survey of Student Engagement (FSSE), and departmental institutional effectiveness data. Benchmarks for the critical thinking measures were set in Year Two based on data collected in the first year and recommendations of test developers, members of the assessment taskforce and advisory board, and the QEP evaluator.

Student Learning Outcomes. The first four student learning outcomes (SLOs) are assessed using the CAT, with each outcome assessed by specific items that align with target skill sets. The **CAT** is a cognitive measure used to assess four broad areas of critical thinking -- evaluating and interpreting information, problem solving, creative thinking, and effective communication. Comprised of short essay questions derived from real-world situations, the CAT is the QEP's core assessment measure because the specific skills assessed align closely with four of the five student learning outcomes. The CAT was administered to 200 entering freshmen in Fall 2012 and to 200 graduating seniors in Spring 2013. The benchmark for these SLOs is "continued growth of senior scores across program years."

SLO1: ***Students will identify, evaluate, and interpret information by raising pertinent questions and identifying uncertainties***. Student learning outcome one is measured by CAT questions 1, 2, 5, 8, 10, 11, 13, and 14 (Table 1). Senior participants scored higher than freshmen participants on all eight items pertaining to identifying, evaluating, and interpreting information.

Compared to seniors in Year One, Year Two seniors scored higher on the majority of items (5/8), two scores were unchanged, and one score slightly decreased (item 13: .04 decrease in "identifying suitable solutions for areal-world problem using relevant information").

SLO2: ***Students will solve problems by determining limitations, making connections, and prioritizing the potential solutions.*** CAT questions 4, 7, 10, 11, 12, 13, 14, and 15 were used to assess student learning outcome two (Table 2) involving problem-solving. Again, senior participants scored higher than freshman participants on all eight items. Year Two senior scores showed improvement across half of the items compared to last year's seniors. Three scores remain unchanged, and one score declined slightly (again, item 13, as in SLO1 above).

SLO3: ***Students will create innovative solutions to problems through creative thinking.*** Student learning outcome three was assessed using CAT questions 3, 4, 6, 7, 9, and 15 (Table 3). Keeping with the trend, seniors scored higher on all six items pertaining to using creative thinking to create innovative solutions to solve problems when compared to freshman in Year Two. Comparing senior groups, this year's group of senior students scored higher on half of the items, with two scores unchanged, and one score that slightly decreased (item 6: .02 decrease in "providing alternative explanations for spurious associations").

SLO4: ***Students will communicate ideas and information effectively.*** CAT questions 2, 3, 4, 6, 7, 9, 11, 14, and 15 (Table 4) were used to assess the fourth learning outcome assessing students' ability to communicate effectively. Again, Year Two seniors scored higher than Year Two freshmen participants on all items. Additionally, five of nine skill areas received higher scores from Year Two seniors than they did from Year One seniors. Three scores were the same, and one score was slightly lower (item 6, as in SLO 3 above).

In examining Year Two data on the first four SLOs, seniors are again this year gaining

critical thinking skills by the time they graduate, with seniors scoring higher than freshmen on all skill sets. Further, data indicate that Year Two seniors are graduating with more critical thinking skills than last year's seniors, with half to nearly two-thirds of skills within each outcome reflecting higher scores. Though two skills saw decreases, they were slight (.02 and .04 decreases). Overall, the outcome of "continued growth of senior scores across program years" is being met.

SLO5: ***Students will seek ongoing improvement to integrate knowledge and skill through reflection on their thinking and learning processes.*** Student learning outcome five is assessed using **experiential learning data** because this entails applied experiences that require reflection to integrate classroom knowledge in real-world settings. These data are new in Year Two, thus desired benchmarks will be set in Year Three.

Experiential learning data (Table 5) show that this component has made substantial progress this year. Fifty-three faculty and student-initiated experiential learning projects were proposed, and 48 were approved (90.6%). However, these were predominately student-initiated projects, and only one-third made it to fruition with 19 reflections completed. Nonetheless, across these projects 58 students completed 2,012 engagement hours (average 34.7 hours per project). Another 130 approved events (e.g., lectures, films, presentations, cultural activities) were attended by 730 students who completed 1,219 short reflection cards (many students attended more than one event) for a total of 1,732 engagement hours (average 2.4 hours per event). In all, 788 students completed 3,744 engagement hours through either an experiential learning project or an event.

Qualitative analysis of project reflections also indicates that students are *seeking ongoing improvement to integrate knowledge and skill through reflection of thinking and learning processes* (SLO5). Three major themes identified in the narratives support these learning processes: "reflecting on learning/metacognition," "gaining new perspectives and understandings,"

and "connecting to diverse groups of people". See Reflection Themes for sample passages.

Overall Measures of Critical Thinking. To provide a more comprehensive examination of critical thinking at UTC, additional measures are included in the assessment plan: the CAT total scale, PPE measures, NSSE/FSSE perception data, and institutional effectiveness data.

In looking at the **CAT total scale** (Table 6), seniors scored higher than freshmen on all CAT items again in Year Two and on the total score (freshmen mean=12.06, senior mean=16.90). A comparison of Year Two seniors to last year's seniors shows higher scores now on nine of the fifteen skill areas and also on the total score (freshmen=16.09, seniors 16.90). Though senior to senior growth is slight, this is acceptable after one year of program implementation. The desired outcome of "continued growth among senior scores across program years" has been met this year.

The **PPE** is a cognitive measure administered to seniors for general education outcomes assessment and provides scale scores and proficiency levels of several skill and content areas, including critical thinking. Because the PPE is administered as an exit exam, it indicates seniors' skill area competency and thus was included in the assessment plan. The PPE (Table 7) was administered to 1,252 graduating seniors in Year One and to 1,192 graduating seniors in Year Two. Last year's report reviewed preliminary comparisons (data prior to the program) which found that exiting seniors were declining in their critical thinking skills, from 9.49% proficient in 2010-2011 to 7.03% proficient in 2011-2012 (2.46% decrease). However, Year Two saw a slight increase in critical thinking skills (.02%). Combined with a 4.75% drop in students "not proficient" (more now in the "marginal" category), this was enough to increase the institutional ranking percentage from 19% of institutions below UTC last year to 35% institutions below UTC in Year Two. This score moves UTC closer to its anticipated outcome of "at or above mean institutional ranking" (50^{th} percentile or higher) by year five.

The **NSSE and FSSE** are surveys of student engagement used to compare student and faculty perceptions of emphasis on higher-level thinking in the classroom. The surveys provide a unique opportunity to examine discrepancies between what faculty think they are teaching and what students believe they are learning in class. The surveys (Table 8) were administered to 434 faculty and 3,882 students in Spring 2011 (preliminary data) and 473 faculty and 5.970 students in Spring 2012 (Year One data; Spring 2013 data are not available yet). Preliminary data revealed that far fewer faculty (28% lower division courses, 22% upper division courses) than students (74% first-year students, 69% seniors) in 2010 felt they emphasized *memorization* in their classes (46% and 47% difference respectively). Similarly, higher level thinking skills thought to be emphasized by faculty (e.g., synthesizing, organizing, applying, solving, thinking critically, analytically) were less likely to be deemed so by students. However, though these gaps were still evident in 2011, the disparities in perceptions decreased across the board, meeting the desired outcome of "decreased perception gap across program years."

Finally, new to the QEP assessment is **departmental institutional effectiveness data.** These data reflect the extent to which critical thinking learning outcomes are incorporated at the department level. At the start of Year Two, all departments were asked to develop at least one learning outcome pertaining to critical thinking. A review of their outcomes at the end of Year Two indicates that, across the university, about half of departments (51.9%) now have critical thinking outcomes as part of their institutional effectiveness focus (Table 9). While two colleges have no critical thinking outcomes within their departments, the College of Health, Education, and Professional Studies is at 40% inclusion, and the College of Arts and Sciences is at 63.2% inclusion. This is a target area for Year Three as UTC works toward the goal of 100% departmental inclusion of critical thinking student learning outcomes.

III. Needed Institutional Improvements to the QEP

Assessment results suggest that little improvement is needed to the QEP in Year Three. CAT data indicate that seniors continue to graduate with more critical thinking skills than freshmen and that seniors' critical thinking is increasing across years. PPE data reveal that critical thinking scores are rising, with UTC climbing in institutional rankings. NSSE/FSSE data indicate the disparity in perceptions of classroom learning is decreasing between faculty and students. The Beyond the Classroom program made substantial progress, formalizing students' experiential learning activities into a valued program at UTC. Half of all departments have critical thinking learning outcomes as part of their institutional effectiveness plans. All assessments show progress.

However, two areas call for more focused attention. First, the Beyond the Classroom component needs to be strengthened. The program needs more student involvement and completion of projects/project reflections. That only one-third of approved experiential learning projects were completed (or reflections submitted) is problematic. The strategy to more effectively track student progress is being integrated with more faculty involvement in both student and faculty-initiated experiential learning. Only two contracts were initiated by faculty this past year, and therefore the coordinator is implementing a course designation to help tie experiential learning more directly to the curriculum, which will also help to increase faculty and student involvement.

The second area in need of improvement is departmental participation in developing critical thinking student learning outcomes as part of institutional effectiveness at UTC. Although half of departments currently have such outcomes, all departments must participate. Plans for increasing participation includes involvement of upper administrators, review at the college and department level, development of faculty teams to work together to develop outcomes applicable to their disciplines, and increased help from *ThinkAchieve* staff in departments as needed.

IV. Evaluation of the QEP and Directions for Year Three

Year Two results suggest a very promising critical thinking quality enhancement plan at UTC. Assessment data suggest that the three-component program, designed to develop and nurture critical thinking skills across the undergraduate experience, is proceeding as planned.

Year Three activities will continue as in Year Two as outlined in the implementation plan. In Year Three, orientation evaluations will be analyzed, and any needed revisions to its content will be made. If revised, the orientation module will be piloted and revised again. The third set of critical thinking orientation sessions is scheduled for summer 2014.

A review of Year Two assessments will guide necessary changes to faculty development activities, which are scheduled to continue in Year Three. Seminars, webinars, workshops, retreats, faculty learning communities, and book clubs will continue to focus on critical thinking strategies. Experiential learning will be a new faculty development theme in Year Three to help grow the Beyond the Classroom component. CAT training and grading sessions will continue as usual, as will the Grants Program, Faculty Fellows, and Faculty Awards. New formative assessments will be developed in Year Three to help determine the extent to which faculty learning about critical thinking is applied in the classroom.

The Beyond the Classroom Program will move forward in Year Three, beginning with a review of assessment data. The faculty and student-initiated experiential learning contracts, and smaller approved learning events, will continue. New in the upcoming year will be the experiential learning course designations and development of its critical thinking assessment. The next two semester award ceremonies are scheduled for fall 2013 and spring 2014.

Assessment activities will continue as they did this past year. Benchmarks will be set for SLO5, and a review of progress toward departmental critical thinking SLOs will be new next year.

ThinkAchieve: Creating Connections Assessment Plan with Benchmarks

To Be Evaluated	Student Learning Outcome/Description	Measure(s)	Begins	Benchmarks (across five years)
SLO1	• Identify, evaluate, and interpret information by raising pertinent questions and identifying uncertainties	• CAT: Q1, Q2, Q5, Q8, Q10, Q11, Q13, Q14	• YR1	• Continued growth of senior scores
SLO2	• Solve problems by determining limitations, making connections, and prioritizing the potential solutions	• CAT: Q4, Q7, Q10, Q11, Q12, Q13, Q14, Q15	• YR1	• Continued growth of senior scores
SLO3	• Create innovative solutions to problems through creative thinking	• CAT: Q3, Q4, Q6, Q7, Q9, Q15	• YR1	• Continued growth of senior scores
SLO4	• Communicate ideas and information effectively	• CAT: Q2, Q3, Q4, Q6, Q7, Q9, Q11, Q14, Q15	• YR1	• Continued growth of senior scores
SLO5	• Seek ongoing improvement to integrate knowledge and skill through reflection of their thinking and learning processes	• # ThinkAchieve Experiential Learning experiences proposed • # ThinkAchieve Experiential Learning experiences approved • # ThinkAchieve Experiential Learning program students • ThinkAchieve Experiential Learning Student Reflections	• YR2	• To be determined in Year Three
TOTAL CT	• Overall measures of critical thinking	• Total CAT scores • % students proficient on PPE Critical Thinking Skill Level 3 • Departmental institutional effectiveness data • NSSE/FSSE data	• YR1	• Continued growth of senior scores • At or above mean percentile rank (50^{th} percentile in institutional ranking) • 100% of departments with at least one critical thinking outcome • Continued decrease in perception gap

Table 1. Student Learning Outcome One CAT Means

Students will be able to identify, evaluate, and interpret information by raising pertinent questions and identifying uncertainties

Q#	Skill Assessed by CAT Question	Freshmen Mean YR2	Senior Mean YR2	Mean Difference	Senior Mean YR1	Senior Mean YR2	Mean Difference
Q1	Summarize the pattern of results in a graph without making inappropriate inferences	0.41	0.66	0.25	0.65	0.66	0.01
Q2	Evaluate how strongly correlational-type data supports a hypothesis	0.57	1.15	0.58	0.84	1.15	0.31
Q5	Evaluate whether spurious information strongly supports a hypothesis	0.56	0.67	0.11	0.61	0.67	0.06
Q8	Determine whether an invited inference is supported by specific information	0.41	0.61	0.20	0.61	0.61	0
Q10	Separate relevant from irrelevant information when solving a real-world problem	2.93	3.15	0.22	3.07	3.15	0.08
Q11	Used and apply relevant information to evaluate a problem	0.78	1.04	0.26	1.04	1.04	0
Q13	Identify suitable solutions for a real-world problem using relevant information	0.57	0.91	0.34	0.95	0.91	-0.04
Q14	Identify and explain the best solution for a real-world problem using relevant information	1.42	1.91	0.49	1.75	1.91	0.16

Table 2. Student Learning Outcome Two CAT Means

Students will be able to solve problems by determining limitations, making connections, and prioritizing the potential solutions

Q#	Skill Assessed by CAT Question	Freshmen Mean YR2	Senior Mean YR2	Mean Difference	Senior Mean YR1	Senior Mean YR2	Mean Difference
Q4	Identify additional information needed to evaluate a hypothesis	0.52	1.39	0.87	1.16	1.39	0.23
Q7	Identify additional information needed to evaluate a hypothesis	0.42	0.66	0.24	0.66	0.66	0
Q10	Separate relevant from irrelevant information when solving a real-world problem	2.93	3.15	0.22	3.07	3.15	0.08
Q11	Used and apply relevant information to evaluate a problem	0.78	1.04	0.26	1.04	1.04	0
Q12	Use basic mathematical skills to help solve a real-world problem	0.66	0.82	0.16	0.80	0.82	0.02
Q13	Identify suitable solutions for a real-world problem using relevant information	0.57	0.91	0.34	0.95	0.91	-0.04
Q14	Identify and explain the best solution for a real-world problem using relevant information	1.42	1.91	0.49	1.75	1.91	0.16
Q15	Explain how changes in a real-world problem situation might affect the solution	0.62	0.80	0.18	0.80	0.80	0

Table 3. Student Learning Outcome Three CAT Means

Students will be able to create innovative solutions to problems through creative thinking

Q#	Skill Assessed by CAT Question	Freshmen Mean YR2	Senior Mean YR2	Mean Difference	Senior Mean YR1	Senior Mean YR2	Mean Difference
Q3	Provide alternative explanations for a pattern of results that has many possible causes	0.49	0.99	0.50	0.98	0.99	0.01
Q4	Identify additional information needed to evaluate a hypothesis	0.52	1.39	0.87	1.16	1.39	0.23
Q6	Provide alternative explanations for spurious associations	1.07	1.37	0.30	1.39	1.37	-0.02
Q7	Identify additional information needed to evaluate a hypothesis	0.42	0.66	0.24	0.66	0.66	0
Q9	Provide relevant alternative interpretations for a specific set of results	0.69	0.86	0.17	0.82	0.86	0.04
Q15	Explain how changes in a real-world problem situation might affect the solution	0.62	0.80	0.18	0.80	0.80	0

Table 4. Student Learning Outcome Four CAT Means

Students will be able to communicate ideas and information effectively

Q#	Skill Assessed by CAT Question	Freshmen Mean YR2	Senior Mean YR2	Mean Difference	Senior Mean YR1	Senior Mean YR2	Mean Difference
Q2	Evaluate how strongly correlational-type data supports a hypothesis	0.57	1.15	0.58	0.84	1.15	0.31
Q3	Provide alternative explanations for a pattern of results that has many possible causes	0.49	0.99	0.50	0.98	0.99	0.01
Q4	Identify additional information needed to evaluate a hypothesis	0.52	1.39	0.87	1.16	1.39	0.23
Q6	Provide alternative explanations for spurious associations	1.07	1.37	0.30	1.39	1.37	-0.02
Q7	Identify additional information needed to evaluate a hypothesis	0.42	0.66	0.24	0.66	0.66	0
Q9	Provide relevant alternative interpretations for a specific set of results	0.69	0.86	0.17	0.82	0.86	0.04
Q11	Used and apply relevant information to evaluate a problem	0.78	1.04	0.26	1.04	1.04	0
Q14	Identify and explain the best solution for a real-world problem using relevant information	1.42	1.91	0.49	1.75	1.91	0.16
Q15	Explain how changes in a real-world problem situation might affect the solution	0.62	0.80	0.18	0.80	0.80	0

Table 5. Beyond the Classroom Experiential Learning Data

Experiential Learning Projects 2012-13	Faculty N	Student N	Experiential Learning Events 2012-2013	Student N
Proposed Projects	2	51	NA	NA
Approved Projects	2	46	Cards Received	1,219
Completed Projects	2	17	Events Attended	130
Student Participants	43	15	Student Participants	730
Proposed Engagement Hours	NA	2,555	NA	NA
Completed Engagement Hours	1,332	680*	Completed Engagement Hours	1,732*

Hours reflect student self-reported engagement** ***Hours reflect estimated event times

ThinkAchieve Experiential Learning Projects: Year Two Student Reflection Themes

Reflecting on Learning/Metacognition

- "…I learned a variety of skills that I can easily transfer to others and I am more confident in my ability to do so…"
- "…For the poetry/English related events, I learned a lot of different techniques and methods that I can use in my own works and school experiences."
- "It is so important to be applying what you learn. Not only does it help you retain information, but it also adds value to all of your hard work. So many students just get to the point where they want to finish school. It becomes a means to an end. After [this experience], I see school as less of a task and more of a way to better myself for my future career."
- "I never thought I could ever feel as empowered as I do now, or felt is if I could do/be what I want, but after experiencing this training, I feel like I can accomplish anything."

Gaining New Perspectives and Understandings:

- "I [had] a chance to delve into other experiences beyond the academic and learn new things about myself."
- "Seeing the joyful people of Honduras and Nicaragua makes me question my own attitude day to day here in the United States. Coming back from such a moving experience, I have made it a goal to remember that materialistic things and selfishness will not bring me happiness, but instead serving others and maintaining a positive attitude will…I have also asked myself, 'How can I be better student?' so that I can go back as a doctor one day."
- "My question now is: 'What can I do now to be a better teacher'? I have so many resources available to me now that I many not have when I start teaching. Professional Development School has opened my eyes up to the materials and time involved in lesson planning and instruction. I have gained so many useful strategies and materials from my cooperating teachers at CSAS, and I now know that this is the time to begin collecting these."
- "Many of the students [that I worked with] have different viewpoints from my own. They had different ideas about family, work, and religion. I learned how to be sensitive to others' beliefs, and how to stay objective when editing writing assignments."

Connecting to Diverse Groups of People:

- "Learning the various aspects of multicultural public relations and being respectful of other beliefs/religions, etc."
- "…meeting and working with diverse groups of people."
- "I learned how to better connect with and communicate with people in my community that are different from me."
- "… "Meeting other women on campus that [are] interested in becoming leaders, or already are leaders."

Table 6. CAT Total Critical Thinking Scale

Q#	Skill Assessed by CAT Question	Freshmen Mean YR2	Senior Mean YR2	Mean Difference	Senior Mean YR1	Senior Mean YR2	Mean Difference
Q1	Summarize the pattern of results in a graph without making inappropriate inferences	0.41	0.66	0.25	0.65	0.66	0.01
Q2	Evaluate how strongly correlational-type data supports a hypothesis	0.57	1.15	0.58	0.84	1.15	0.31
Q3	Provide alternative explanations for a pattern of results that has many possible causes	0.49	0.99	0.50	0.98	0.99	0.01
Q4	Identify additional information needed to evaluate a hypothesis	0.52	1.39	0.87	1.16	1.39	0.23
Q5	Evaluate whether spurious information strongly supports a hypothesis	0.56	0.67	0.11	0.61	0.67	0.06
Q6	Provide alternative explanations for spurious associations	1.07	1.37	0.30	1.39	1.37	-0.02
Q7	Identify additional information needed to evaluate a hypothesis	0.42	0.66	0.24	0.66	0.66	0
Q8	Determine whether an invited inference is supported by specific information	0.41	0.61	0.20	0.61	0.61	0
Q9	Provide relevant alternative interpretations for a specific set of results	0.69	0.86	0.17	0.82	0.86	0.04
Q10	Separate relevant from irrelevant information when solving a real-world problem	2.93	3.15	0.22	3.07	3.15	0.08
Q11	Used and apply relevant information to evaluate a problem	0.78	1.04	0.26	1.04	1.04	0
Q12	Use basic mathematical skills to help solve a real-world problem	0.66	0.82	0.16	0.80	0.82	0.02
Q13	Identify suitable solutions for a real-world problem using relevant information	0.57	0.91	0.34	0.95	0.91	-0.04
Q14	Identify and explain the best solution for a real-world problem using relevant information	1.42	1.91	0.49	1.75	1.91	0.16
Q15	Explain how changes in a real-world problem situation might affect the solution	0.62	0.80	0.18	0.80	0.80	0
	TOTAL	**12.06**	**16.90**	**4.84**	**16.09**	**16.90**	**0.81**

Table 7. PPE Critical Thinking Assessments

PPE Measures	2010-2011 Baseline	2011-2012 YR1	Difference	2011-2012 YR1	2012-2013 YR2	Difference
Percent UTC graduating seniors proficient at Reading-Critical Thinking Skill Level 3	9.49%	7.03%	-2.46%	7.03%	7.05%	0.02%
Percent UTC graduating seniors NOT proficient at Reading-Critical Thinking Skill Level 3	74.24%	78.83%	4.59%	78.83%	74.08%	-4.75%
UTC Critical Thinking Mean Score	112.93	111.84	-1.09	111.84	112.51	0.67
Critical Thinking Percent Institutions below UTC	39%	19%	-20%	19%	35%	16%

Table 8. FSSE/NSSE Perceptions of Classroom Skills

Classroom Skills Taught/Learned	Division/ Year*	FSSE%** 2011	NSSE%** 2011	%Difference (Students)	FSSE%** 2012	NSSE%** 2012	%Difference (Students)
Memorizing facts, ideas, or methods from course and reading	LD/F	28	74	46	33	77	44
	UD/S	22	69	47	32	67	35
Synthesizing and organizing ideas, information, or experiences	LD/F	83	72	-11	82	72	-10
	UD/F	90	72	-18	85	72	-13
Applying theories or concepts to practical problems or in new situations	LD/F	78	66	-12	79	69	-10
	UD/S	96	79	-17	79	78	-1
Thinking critically and analytically	LD/F	89	82	-7	91	77	-14
	UD/S	98	84	-14	85	85	0
Solving complex real-world problems	LD/F	52	53	1	71	68	-3
	UD/S	70	56	-14	72	72	0

***Division**: LD=lower division classes (mostly first-year and sophomore students), UD=upper division classes (mostly junior and senior students)*

***Year**: F=first-year students; S=senior students*

****FSSE**: Percent faculty who reported teaching a skill "very much" and "quite a bit"*

****NSSE**: Percent students who reported learning a skill "very much" and "quite a bit"*

Table 9. Critical Thinking Learning Outcomes by Undergraduate Department and College 2012-2013

College of Business Administration	**# CT Outcomes***	**% CT Outcomes**
Business Administration**	0	0
Total	**0**	**0**
College of Arts and Sciences	**# CT Outcomes**	**% CT Outcomes**
Art	0	0
Biological & Environmental Sciences	2	10.5
Chemistry	1	5.3
Communication	1	5.3
Criminal Justice/Legal Assistant Studies	1	5.3
Economics	1	5.3
English	0	0
Modern and Classical Languages	0	0
History	0	0
Humanities (International Studies, Women's Studies)	1	5.3
Integrated Studies	1	5.3
Mathematics	1	5.3
Music	0	0
Philosophy & Religion	0	0
Physics, Geology & Astronomy	0	0
Political Science & PANM	1	5.3
Psychology	0	0
Sociology, Anthropology & Geography	1	5.3
Theatre & Speech	1	5.3
Total	**12**	**63.2%**
College of Engineering and Computer Science	**# CT Outcomes**	**% CT Outcomes**
Engineering	0	0
Computer Science and Engineering	0	0
Total	**0**	**0**
College of Health, Education & Professional Studies	**# CT Outcomes**	**% CT Outcomes**
Education	0	0
Health and Human Performance	1	20
Interior Design	0	0
Nursing	0	0
Social Work	1	20
Total	**2**	**40%**
All Colleges/Departments	**# CT Outcomes**	**% CT Outcomes**
Total	**14**	**51.9%**

*Outcome counts included in this table are those deemed usable and assessable

**Business Administration has four departments, but only one set of outcomes

ThinkAchieve: Creating Connections Five-Year Implementation Plan

QEP Theme	Action Item	Pre-YR 1	Year 1 - 2011-2012			Year 2 - 2012-2013			Year 3 - 2013-2014			Year 4 - 2014-2015			Year 5 - 2015-2016		
			Fall	Spring	Summer	Fall	Spring	Summer	Fall	Spring	Summer	Fall	Spring	Summer	Fall	Spring	Summer
Pre-orientation/Orientation	Design/Revise Orientation Module			X			X										
	Train faculty and staff facilitators			X			X										
	Pilot Orientation Module			X			X										
	Roll Out Orientation Module				X			X									
	Assess Orientation Module					X											
Curricular Integration	Hire faculty developer		X														
	Convert QEP Committee to ThinkAchieve Task Force		X														
	Conduct/assess faculty seminars, institutes	X	X	X	X	X	X	X									
	Faculty attend CAT Train-the-Trainer Conference	X	X	X		X											
	Conduct/assess CAT training	X	X	X	X	X	X	X									
	Assess faculty development needs	X	X	X	X	X	X	X									
	Introduce new faculty to QEP at orientation	X			X												
	Update/maintain online resources		X	X	X	X	X	X									
	Implement Faculty Learning Communities			X		X											
	Faculty Learning Communities Active			X		X	X										
	Implement Faculty Cohorts					X	X										
	Implement Faculty Awards Program					X	X										
	Create Think Achieve Grants Task Force			X													
	Design Think Achieve Grants Program			X													
	Implement Think Achieve Grants Program			X	X	X	X	X									
	Assess ThinkAchieve Grants Program					X	X	X									
	Incorporate programmatic revisions based on yearly assessment																
Experiential Learning	Hire experiential coordinator		X														
	Create Think Achieve Awards Task Force			X													
	Develop criteria/guidelines for Think Achieve awards			X	X												
	Promote Think Achieve awards program			X	X	X	X	X									
	Develop co-curricular transcript			X	X												
	Implement co-curricular transcript					X	X	X									
	Plan/implement award program celebrations						X										
	Assess Experiential Learning Programs program							X									
	Incorporate programmatic revisions based on yearly assessment																
Institutional Assessment	Hire QEP assessment personnel		X														
	Create Assessment Task Force			X													
	Refine assessment plan			X													
	Develop process evaluations			X													
	Review Institutional Effectiveness Data						X										
	Administer and Score CAT		X	X	X	X	X	X									
	Administer PPE		X	X	X	X	X	X									
	Administer NSSE			X			X										
	Administer FSSE			X			X										
	Compare NSSE/FSSE Results			X			X										
	Prepare ALL Yearly Assessment Reports				X			X									

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