

# Think@Achieve

CREATING CONNECTIONS

## QUALITY ENHANCEMENT PLAN

The University of Tennessee at Chattanooga  
Chattanooga, Tennessee

February 15, 2011







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It is with great pride that I present UTC's Quality Enhancement Plan (QEP) as the keystone of our process to achieve reaffirmation of accreditation by the Commission on Colleges (COC) of the Southern Association of Colleges and Schools (SACS).

The 2011 QEP, *ThinkAchieve: Creating Connections*, builds upon the substantial work of a wide spectrum of campus community members. From the students, staff, and faculty who participated in the forums and idea-generating gatherings to the committee who developed the plan, this QEP represents broad-based involvement and engagement in both the process and the product.

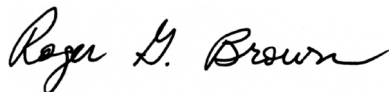
*ThinkAchieve: Creating Connections* is proposed to close the gaps at UTC: the documented gaps between student and faculty perception of higher-level thinking skills in the classroom, the distancing gaps between student development programming and academic curricula, and perhaps most importantly, the gaps between the campus we are and the campus we have yet to become.

*ThinkAchieve: Creating Connections* fosters an environment focused on student learning and critical thinking. It encourages trans-disciplinary connections, cross-curricular programming, and relationships between the campus and the greater Chattanooga community. It is an ambitious goal, and we take today the bold first step toward that goal.

*ThinkAchieve: Creating Connections* will achieve this goal through three primary links: an introduction to critical thinking at new student orientation; enhanced critical thinking instruction in academic disciplines and departments; and an exciting new focus on experiential learning as a tool to further develop critical thinking skills. Additionally, these elements will be supported by a comprehensive faculty/staff development program. This QEP is not a static document; it has been designed from the start as a dynamic, living program that will grow and change with us as needed. It will involve an ongoing cycle of assessment and improvement to create a transformative experience for our students.

At UTC, we believe in our students. We believe in our faculty and staff. And we believe in the power of *ThinkAchieve: Creating Connections* to transform our campus, to forge connections toward a higher level of achievement in all areas of university life. On behalf of the committee and the entire campus, I present the QEP for your review and comment.

Sincerely,



Roger G. Brown  
Chancellor



## Introduction to The University of Tennessee at Chattanooga

The Mission Statement of The University of Tennessee at Chattanooga (UTC) defines UTC as “an engaged, metropolitan university committed to excellence in teaching, research, and service, and dedicated to meeting the diverse needs of the region through strategic partnerships and community involvement.” This statement represents the past, present, and future of our University community.

Located near downtown Chattanooga, The University of Tennessee at Chattanooga is one of a growing number of institutions characterizing themselves as "metropolitan universities." The metropolitan university mission includes a dedication to meeting the general and professional educational needs of area residents, strong community involvement and leadership, and emphases on applied research and public service (UTC Strategic Plan, 2007). In the fall of 2010, the institution enrolled almost 11,000 students.

Founded by the Methodist Episcopal Church in 1886 as Chattanooga University, UTC combines the advantages of its strong private tradition with the resources and strengths of a public, state-assisted institution. Three years after its founding, the University was consolidated with another church-related school, East Tennessee Wesleyan University at Athens, under the name of Grant University. In 1907, the name University of Chattanooga was adopted, and it continued to operate as a private university for 62 more years. This background as a private institution fuels UTC’s commitment to a student-centered environment and outstanding teaching by a talented and devoted faculty.

The Morrill Act of 1862 granted to each state federal land intended for the development of institutions devoted to the agricultural and military industries. After the Civil War, these land-grants were extended to the former Confederate states, and The University of Tennessee was begun under such a grant. These institutions were intended as public colleges, accessible to all, and created to support such national needs as food production and military training. In 1969, the University of Chattanooga merged with The University of Tennessee as part of the newly-created University of Tennessee system. Pledged to the service of the entire state, The University of Tennessee system comprised four primary campuses: Knoxville, Martin, Memphis (Health Science Center), and Chattanooga.

This land-grant spirit is seen in UTC’s efforts to affect positive social and economic change in Tennessee and the surrounding region. Dedicated to providing quality education to a diverse population of over 10,000 students, UTC seeks to meet its responsibilities as a metropolitan university actively involved with regional municipalities, schools, business, and industry and offers expanded instructional opportunities that respond to area needs. The Chattanooga campus has devoted the major portion of its resources to the development of excellence in undergraduate education and selected areas of graduate study.

Demonstrating this marriage between its public and private traditions, the University’s programs combine a firm grounding in the liberal arts with strong professional preparation. Bachelor’s and graduate degrees (as well as certificate and other post-master’s degrees) are awarded through our Colleges of Arts and Sciences; Business Administration; Health, Education and Applied Professional Studies; and Engineering and Computer Science.

# Think Achieve

CREATING CONNECTIONS

## EXECUTIVE SUMMARY



## Introduction

ThinkAchieve: Creating Connections uses critical thinking as the foundation for each of its student-centered links. The title of the program comes from our belief that students who have become competent in the areas of creative and critical thinking will achieve higher levels of success. Their success at becoming critical thinkers will fuel their achievements in academics, in their careers, and in their lives. We also know that critical thinking cannot be an isolated outcome and must be addressed within an integrated community of learning that emphasizes growth across multiple disciplines and experiences. To be effective in creating this integrated community of learning, we must begin by defining critical thinking. Our definition:



*Critical thinking is the habitual practice of raising questions, identifying problems, analyzing existing information, creating innovative solutions, and reflecting on the process and the product as a means of constant improvement.*

ThinkAchieve: Creating Connections will integrate this definition in the following student programs:

- ThinkAchieve: Introduction – pre-orientation and orientation programming,
- ThinkAchieve: In the Classroom – curricular integration, and
- ThinkAchieve: Beyond the Classroom – experiential learning.

We have developed this program to meet the standards as outlined in *The Principles of Accreditation* (2008). ThinkAchieve: Creating Connections

1. includes a broad-based institutional process identifying key issues emerging from institutional assessment,
2. focuses on learning outcomes and/or the environment supporting student learning and accomplishing the mission of the institution,
3. demonstrates institutional capability for the initiation, implementation, and completion of the QEP,
4. includes broad-based involvement of institutional constituencies in the development and proposed implementation of the QEP, and
5. identifies goals and a plan to assess their achievement.

## Broad-based Institutional Process

In the fall of 2008, the UTC QEP committee was formed of faculty, staff, and students from representative areas of campus (Appendix A). The committee first explored a variety of institutional student assessment data: the 2006, 2007, and 2008 administrations of the Collegiate Assessment of Academic Proficiency (CAAP); the 2005 and 2006 administrations of the National Survey of Student

Engagement (NSSE); and the 2005 administration of the Faculty Survey of Student Engagement (FSSE). These data were used as a starting point for 15 campus-wide discussions held during the 2008-09 academic year. These sessions were strategically scheduled to provide all University representatives the opportunity to attend at least one session. In addition, an online blog was created to capture information from individuals who could not attend any of these open sessions. An additional afternoon workshop with over 50 campus participants was held to further refine these goals. As the QEP has developed, faculty and staff have been invited to participate, comment, question, or make suggestions along the way.

## **Key Issues from Institutional Assessment**

UTC student and faculty responses on the NSSE and FSSE presented the first step toward a QEP focus. The data revealed twice as many students as faculty perceiving a major emphasis on memorization in their courses. As content memorization is often considered the lowest level of cognitive level thinking, we were concerned about such a perception gap. When perceptions of the two groups were compared on teaching at the highest levels of cognitive learning, (solving problems, thinking critically and analytically, and synthesizing), significantly more UTC faculty than students reported major emphasis on the higher levels of thinking. While these data are admittedly self-reported perceptions, the differences between faculty and students regarding the intellectual level of learning was striking, and it exposed an important area in need of improvement.

UTC's quantitative data also reflect a need for such improvement. The University's 2010 General Education Assessment Report cites Measure of Academic Proficiency and Progress (MAPP) results that indicate only 12% of UTC seniors are "proficient" in critical thinking. The same data report 72% of seniors are "not proficient." Additionally, the data from CAAP exams administered between 2006 and 2008 show UTC seniors scoring significantly lower on the subscales of rhetoric, overall writing skills, critical thinking, and science reasoning than they did on mathematics and writing usage and mechanics. At UTC, we agree with the 1991 National Education Goals Panel Report, which asserts "there is a need for institutions to substantially increase the proportion of college graduates who demonstrate an advanced ability to think critically, communicate effectively, and solve problems" (United States 62). Emphasizing critical thinking in the QEP will allow us to achieve this important goal.

## **Learning Outcomes / Supporting Student Learning**

Using our definition of critical thinking as a guide, ThinkAchieve: Creating Connections proposes the following statement of student learning outcomes:

Students who have developed the habitual practice of critical thinking will

1. raise pertinent questions,
2. identify relevant problems,
3. analyze existing information,
4. create innovative solutions, and
5. reflect on their process and product to
6. seek ongoing improvement.

Each of the programmatic elements of ThinkAchieve: Creating Connections will support these learning outcomes and the further development of student learning. This program is student-centered and makes possible a broad-based paradigm shift in teaching and learning toward pedagogies that have been proven more effective in theoretical studies as well as in the classroom.

### **Accomplishing UTC's Mission**

ThinkAchieve: Creating Connections aligns seamlessly with UTC's stated Mission as "an engaged, metropolitan university committed to excellence in teaching, research, and service, and dedicated to meeting the diverse needs of the region through strategic partnerships and community involvement." By focusing the plan on critical thinking, we will ensure the continued growth of excellence in teaching and learning. By creating a new experiential learning program for students, we will be demonstrating our commitment to community service as well as meeting the needs of the region and developing those strategic partnerships. Every effort of ThinkAchieve: Creating Connections has been designed to contribute to the accomplishment of UTC's mission.

### **Institutional Capability**

The three links of the QEP will be supported and integrated through the current organization by adding several positions and by delegating some programs to existing units. First, the current QEP Committee will be reconstituted as the ThinkAchieve Advisory Board to serve in an advisory capacity to all groups working on ThinkAchieve: Creating Connections over the course of the five-year plan. The plan calls for the addition of three positions: a Coordinator of Experiential Learning, a Critical Thinking Faculty Development Specialist, and a Coordinator of QEP Assessment. Other major funding includes a budget for faculty and professional development activities, the ThinkAchieve Development Grants program, the ThinkAchieve Faculty Mentor Awards program, and assessment costs (CAT, NSSE, FSSE, PPE break out reports). The institution has committed to funding the QEP programs with a projected budget of \$1,658,848 over the course of the five-year plan. These funding needs will be a part of the annual cycle of budgeting completed by the University's financial officers and approved by the UT Board of Trustees.

### **Broad-based Involvement**

The broad involvement across campus during the development of the QEP continues during its implementation. The institutional constituencies projected to be involved in ThinkAchieve: Creating Connections include Student Development, Admissions, Alumni Relations, all academic programs and disciplines, professional development through the Walker Teaching Resource Center, and any program that could conceivably qualify as a ThinkAchieve experiential learning opportunity. Though the breadth of the plan could seem daunting, we are confident it is just broad enough to reach the maximum number of students without overwhelming the system. Because we know integrative learning experiences are the most transformative, we know that this broad-based involvement in implementation is a crucial component to student success.

## Goals and Assessment

By using the stated learning outcomes above, UTC will be able to track student access to and capability in those desired critical thinking skills. One means to assessing student achievement in this area is the Critical Thinking Assessment Test (CAT). The CAT will be administered to first-year students to establish a data baseline and to graduating seniors as part of the exit process. Thus, we will be able to note the institutional progress being made on these scores as the plan is fully implemented. We will continue to use the ETS Proficiency Profile Exam (PPE) to watch for gains in the critical thinking sub-scores of graduating seniors. Finally, we will rely on the National Survey of Student Engagement (NSSE) and Faculty Survey of Student Engagement (FSSE) tests to see if student and faculty perceptions begin to align regarding the emphasis on higher-level thinking in the classroom.

Additionally, each academic and student-centered unit will use the existing Institutional Effectiveness assessment cycle to set desired outcomes, assess the achievement of those outcomes, and use their results to improve and innovate for the following year. We will encourage academic programs to institute or enhance a capstone experience and to use those capstone experiences as a tool for assessing the stated outcomes of the QEP. Each program's assessment should result in recommendations to refine the programs on a yearly basis. In addition, the institution will assess the approved experiential programs and revise them to ensure authenticity and improvement in critical thinking and problem-solving skills.

## Conclusion

Lisa Tsui argues that the development of a complete campus culture is the most effective way to foster a community of critical thinkers. She writes, "Success in developing critical thinking requires institutions to recognize that enhancing students' abilities to think critically is truly within their own interests because graduates who can think critically become more productive and successful alumni and citizens" (435). UTC prides itself on having an active and productive body of alumni, but like anything else, we can improve the ways in which we prepare our future alumni for life beyond the university. Though we agree with Tsui about the university's self-interest, we set forth this QEP with the goal of graduating students who have become first and foremost habitually critical thinkers. When they turn their critical minds to the challenges before them, we believe they will achieve great things – a boon not just to UTC but potentially to the world.





**DEVELOPMENT OF THE  
QUALITY ENHANCEMENT PLAN**

## Identifying the Scope of the QEP

In the fall of 2008, the UTC QEP committee was formed of faculty, staff, and students from representative areas of campus (Appendix A). The committee first explored a variety of institutional student assessment data: the 2006, 2007, and 2008 administrations of the Collegiate Assessment of Academic Proficiency (CAAP), the 2005 and 2006 administrations of the National Survey of Student Engagement (NSSE), and the 2005 administration of the Faculty Survey of Student Engagement (FSSE). These data were used as a starting point for campus-wide discussions held during the 2008-09 academic year.

UTC student and faculty responses on the NSSE and FSSE presented the first step toward a QEP focus. The data revealed twice as many students as faculty perceiving a major emphasis on memorization in their courses. As content memorization is often considered the lowest level of cognitive learning, we were concerned about such a perception gap. When perceptions of the two groups were compared on teaching at the highest levels of cognitive learning (solving problems, thinking critically and analytically, and synthesizing), significantly more UTC faculty than students reported major emphasis on the higher levels of thinking. While these data are admittedly self-reported perceptions, the differences between faculty and students regarding the intellectual level of learning was striking, and it exposed an important area in need of improvement.

During the 2008-2009 academic year, members of the QEP committee invited campus-wide participation in the development of the Quality Enhancement Plan. They began by conducting 15 focus-group sessions with a variety of campus audiences (faculty, staff, and students). These sessions were strategically scheduled to provide all university representatives the opportunity to attend at least one session. In addition, an online blog was created to capture information from individuals who could not attend any of these open sessions.

From these sessions, three major goals were identified: to improve connections between the general education courses and disciplinary studies, especially in the areas of critical thinking and science and reasoning skills; to improve overall student engagement with the campus and the curriculum; and to increase connections and opportunities for service learning and international and cultural studies. An additional afternoon workshop with over 50 campus participants was held to refine these goals especially in regard to the impact on student achievement and engagement on the campus. These discussions resulted in the identification of four main threads to explore: developing service and applied learning opportunities; improving the first year experience and orientation; integrating capstone and other culminating experiences into the curricula of all disciplines; and teaching and improving critical thinking.

## Determining the Focus and Developing the Programs

During the summer of 2009, the committee conducted a preliminary review of the literature to identify best practices in each of these four main areas. The brief literature review indicated that three of the themes identified (service and applied learning opportunities, first year experience and orientation, and capstone and other culminating experiences) were shown to increase critical thinking and problem-solving skills, the final of the four themes. Thus, the committee knew it could successfully incorporate the first three elements by focusing the QEP on improving student critical thinking and problem-solving skills.

UTC's data reflect a need for such improvement. The University's 2010 General Education Assessment Report cites Measure of Academic Proficiency and Progress (MAPP) results that indicate

12% of UTC seniors are “proficient” in critical thinking. These data also report 72% of UTC seniors are “not proficient” in critical thinking. Additionally, the data from CAAP exams administered between 2006 and 2008 show UTC seniors scoring significantly lower on the subscales of rhetoric, overall writing skills, critical thinking, and science reasoning than they did on mathematics and writing usage and mechanics. At UTC, we agree with the 1991 National Education Goals Panel Report, which asserts “there is a need for institutions to substantially increase the proportion of college graduates who demonstrate an advanced ability to think critically, communicate effectively, and solve problems” (United States 62). Emphasizing critical thinking in the QEP will allow us to achieve this important goal.

After establishing critical thinking and problem solving as a primary focus, the committee returned to the Mission and Core Values of the University to make sure the plan aligned with institutional goals. The Mission states:

The University of Tennessee at Chattanooga is an engaged, metropolitan university committed to excellence in teaching, research, and service, and dedicated to meeting the diverse needs of the region through strategic partnerships and community involvement.

The Core Values are:

**Preparing for the Future**

- The development of ethical and socially responsible leaders, professionals, scholars, and citizens
- The creation of opportunities for those who seek truth, knowledge, and higher quality of life

**Education and Engagement**

- Excellence in teaching within a student-focused, supportive, and challenging environment
- Achievement and national recognition in research, scholarship, and creative endeavors
- Effective partnerships that provide meaningful involvement in educational, economic, and community development

**Positive Institutional Environment**

- A collegial, mutually respectful, and professionally rewarding environment
- Broad diversity of people and ideas to strengthen our institution and community
- Reasonable and affordable access to quality higher education

Using these foundational principles, the committee identified three specific areas for further programmatic development: orientation; curricular integration of critical thinking, including capstone or culminating experiences; and experiential learning. By improving orientation, UTC will enhance the “positive institutional environment”; by increasing critical thinking in the curriculum, we will improve the excellence in teaching and research already present at UTC; and by increasing the visibility of experiential learning, we will create the connections between campus and community as stated in the Mission while preparing our students for the future as outlined in the Core Values. We also believe that the increase in critical thinking and problem-solving skills will lead to greater levels of “achievement in research, scholarship, and creative endeavors” by both the faculty and the students. Undoubtedly, these elements will enhance the student experience and fulfill the stated goals and values of the University.



After determining the main focus of the plan, the committee spent academic year 2009-2010 working on the arduous and inspiring task of developing the programs to be included in the QEP. The vision for the QEP was drafted in the full committee, revised, and has served to guide the entire planning process. That vision is *to develop students who are competent in the areas of creative and critical thinking, capable of the integration and application of knowledge, and confident in the acquisition and development of new ideas and perspectives*. The committee maintained regular

communication with the Deans Council (which meets monthly) and the Department Heads during this time of planning and development. By meeting weekly and forming various subcommittees, the committee began to see the ThinkAchieve program take shape.

### Finalizing the Plan and Implementation Process

The Fall of 2010 took the committee through various stages of finalizing the plan, especially in regard to institutional support, funding outlines, and implementation plans. Without attention to these details, our lofty aims could not be achieved. We also used this time to invite continued campus-wide involvement. Several updates were provided to the general faculty where comments were gladly accepted. A member of the committee pitched the idea of the QEP in each academic department, inviting questions and feedback. The provost provided a QEP update to the UT Board of Trustees in 2010 which was met with general approval. The offices of the Provost, Dr. Phil Oldham, and the Chancellor, Dr. Roger Brown, have been involved in the planning and development process from the beginning and have commended the committee for its transparency and efforts at open communication. The finished QEP was distributed to faculty, and final commentary was invited in January 2011 before the plan was finalized. The campus is already feeling the stir of excitement such a program will bring, and we look forward to seeing it through to full implementation.





**WHY CRITICAL THINKING?  
A LITERATURE REVIEW**

## Background and Definitions

From ancient Socratic questioning to the educational treatises of John Dewey in the early 20<sup>th</sup> century, critical thinking has been a key component of successful teaching and learning. Only in the past two decades, however, has critical thinking been brought to the forefront of American education as a required tool for survival in an ever-changing world. At UTC, we recognize the importance of critical thinking for our students and believe focusing on improving our students' creative and critical thinking will transform their university experiences, their academic successes, and their lives. We also agree fully with William Graham Sumner, one of the first anthropologists and sociologists in the country, in his 1906 *Folkways*:

The critical habit of thought, if usual in a society, will pervade all its mores, because it is a way of taking up the problems of life. . . . [Those] educated in it . . . are slow to believe. They can hold things as possible or probable in all degrees, without certainty and without pain. They can wait for evidence and weigh evidence, uninfluenced by the emphasis and confidence with which assertions are made on one side or the other. They can resist appeals to their dearest prejudices and all kinds of cajolery. Education in the critical faculty is the only education of which it can be truly said that it makes good citizens. (633)

We know there are already many excellent opportunities for students to grow and develop this “critical habit of thought” at UTC. The ThinkAchieve: Creating Connections program seeks to create links between what we are already doing and what we have yet to begin so as to create a culture of thought, an expectation of critical and creative thinking and problem-solving that will fuel our students' achievements in this world.

In order to effectively develop a program around the idea of critical thinking, we must first establish a working definition of the terminology. Many experts in the field have offered varied phrasings to pin down this admittedly elusive concept. Beyer offers the simplest definition: “Critical thinking . . . means making reasoned judgments” (8). Halpern defines critical thinking as “thinking that is purposed, reasoned, and goal-directed. It is the kind of thinking involved in solving problems, formulating inferences, calculating likelihoods, and making decisions” (5). Ennis calls it “rational reflective thinking concerned with what to do or what to believe” (qtd. in Paul 46). The 1987 National Council for Excellence in Critical Thinking offered the following statement prepared by Michael Scriven and Richard Paul:

Critical thinking is the intellectually disciplined process of actively and skillfully conceptualizing, applying, analyzing, synthesizing, and/or evaluating information gathered from, or generated by, observation, experience, reflection, reasoning, or communication, as a guide to belief or action. . . . It can be seen as having two components: 1) a set of information and belief generating and processing skills, and 2) the habit, based on intellectual commitment, of using those skills to guide behavior. (“Defining Critical Thinking”)

This lengthy definition casts a wide net, but it does the work of making specific a state of thinking that is both broad and complex. At UTC, we agree with the expert voices but choose to operate under a definition of our own design that we believe reaches the core of the term's meaning while remaining accessible to students, faculty, and staff:

*Critical thinking is the habitual practice of raising questions, identifying problems, analyzing existing information, creating innovative solutions, and reflecting on the process and the product as a means of constant improvement.*

Our students already do many of these things, though too often discretely, and we see the ThinkAchieve program as a way to create the connections that will forge the habitual nature of these actions. In his preface to the 1<sup>st</sup> edition of Richard Paul's seminal *Critical Thinking*, Gerald Nosich writes, "To the extent that a person acquires the skills, attitudes, and passions of a critical thinker, it will permeate her life" (vi). We will use the literature to show the importance of each of the programmatic elements of ThinkAchieve, but our ultimate goal is to see our students changed: to see the skills, attitudes, and passions of critical thinking permeate their lives.

Critical thinking is often cited as a basic skill within a university education and is expected by the employers of university graduates. In a world where change is the only real certainty, employers demand workers who have adequate critical thinking skills because it is these skills that make them adaptable to such change. Today's student will likely hold several different types of jobs over the course of his/her career. Employers want well-prepared employees regardless of whether it is a student's first job or sixth. According to a 2006 survey commissioned by the Association of American Colleges and Universities (AAC&U), 73% of employers believe that higher education needs to place more emphasis on critical thinking, analytical reasoning skills, and hands-on experiences like internships and other real-world applications (Hart 5). Beyer sees the teaching of critical thinking as important to the very state of our nation. He argues that to live successfully in a democracy, people must be able to think critically in order to make sound decisions about personal and civic affairs. Nosich goes a step further to argue "the ideal of rationality and fair-minded critical thought is essential to global social and economic development and prosperity" (xv).

We know our students need these skills to achieve success in the professional world. Our social, political, and economic climates insist upon creative and critical thinking. With the constant influx of changing information, a successful contributor to society will require the ability to manage multiple perspectives, think critically, and arrive quickly at the most rational and effective solutions possible.

Informing our programmatic decisions are four crucial works. *A Taxonomy for Learning, Teaching, and Assessing: a Revision of Bloom's Taxonomy of Educational Objectives* takes the familiar list of cognitive behaviors (Remember, Understand, Apply, Analyze, Evaluate, and Create) and shifts it from a one-dimensional, linear process to a multi-dimensional, overlapping structure (Anderson et al.). Also providing insight into the taxonomies of thinking is Lee S. Shulman's 2002 "Table of Learning" which contributes to our understanding of student learning and critical thinking. In every phase of the development of ThinkAchieve, we have utilized the strengths of Richard Paul and Linda Elder's work with the Foundation for Critical Thinking. Finally, we rely on the problem-solving expertise of Susan K. Wolcott and her "Steps for Better Thinking." Each of these important works will be discussed in more detail below.

## Taxonomies of Thinking: Anderson et al. and Shulman

Although thoroughly familiar to the educational community, Bloom’s Taxonomy of Educational Objectives has become somewhat problematic in its interpretation. Though not necessarily its intention, the list is often misconceived as a lineal, unidirectional process. The revised taxonomy of Anderson et al. attempts to move away from this misconception by identifying four types of knowledge (Factual, Conceptual, Procedural, and Metacognitive) that overlap and overlay the original six categories of cognitive process (Remember, Understand, Apply, Analyze, Evaluate, and Create). Because we want our students to move beyond the concrete types of knowledge that are demonstrated in work that requires them only to remember facts or understand concepts, we must use these concepts to our students’ benefit. The “lower-order” thinking skills are important, but we must provide students with the opportunity to move fluidly and skillfully from the concrete to the abstract types of knowledge – the procedural and metacognitive – where they can apply what they know, analyze information, evaluate based on defined criteria, and create.

This revised taxonomy does not recommend confining learning to a strict step-by-step process, arguing instead for “meaningful learning [that] provides students with knowledge and cognitive processes they need for successful problem-solving” (65). We appreciate the revision, also, because it offers multiple interpretations of each of these cognitive processes and recognizes the fluid and cyclical nature of the thinking mind.

Recognizing this cyclical nature even more, though, is Lee Shulman. His “Table of Learning” identifies six stages of learning:

- Engagement and Motivation
- Knowledge and Understanding
- Performance and Action
- Reflection and Critique
- Judgment and Design
- Commitment and Identity. (38)

Shulman argues that all learning must begin with engagement and motivation. Without this element, true learning will not actually take place. Learners then move through the stages to come to the important stage of Commitment and Identity.

We . . . commit ourselves to larger groups, larger communities, larger congregations, and professions at large . . . commitment is both moving inward and connecting outward; it is the highest attainment an educated person can achieve. (41)

Though this taxonomy looks like so many others before it – a list – Shulman argues that these stages must not be viewed linearly. He argues that “successfully committed people are more disposed to engage” and explains that “commitment is a powerful stage in the learning process because it engenders new engagements, which in turn engender new understandings, and so forth” (42). This cyclical quality is extremely important to authentic critical thinking, and it is precisely the habit of mind we will be fostering with ThinkAchieve: Creating Connections.

## The Foundation for Critical Thinking: Elder and Paul

We turned to the Foundation for Critical Thinking ([criticalthinking.org](http://criticalthinking.org)) for several elements as we laid the groundwork for this important plan. Many components of their definition of a “well-cultivated critical thinker” (raises vital questions and problems, gathers and assesses relevant information, figures out solutions to complex problems) are reflected in our definition of critical thinking (*The Miniature*

*Guide 1*). We agree that “the failure to teach students to recognize, value, and respect good reasoning is one of the most significant failings of education today” (Three Categories of Questions: Crucial Distinctions) and that “thinking is not driven by answers but by questions” (“The Role of Questions in Teaching, Thinking and Learning”). Finally, it is Paul’s *Critical Thinking* that offers the idea of critical thinking as integrated into a broad set of skills and experiences: “Critical thinking is not a set of skills separable from excellence in communication, problem solving, creative thinking, or collaborative learning, nor is it indifferent to one’s sense of selfworth” (9). This integrative quality is imperative to the true development of a community of critical thinking at UTC.

Paul also insists upon the importance of problem-solving: “We think critically when we have at least one problem to solve. One is not doing good critical thinking, therefore, if one is not solving any problems” (9). Because we agree with this notion of critical thinking as a means by which one solves problems, we have chosen to use problem-solving as a primary tool for teaching and learning in ThinkAchieve: Creating Connections.

### Steps for Better Thinking: Wolcott

Because we see problem-solving as such a crucial element of becoming a competent creative and critical thinker, we have utilized Susan K. Wolcott’s “Steps for Better Thinking: A Developmental Problem Solving Process” for many contributions to ThinkAchieve. Wolcott relies on King and Kitchener’s “reflective judgment model of cognitive development” to argue that the process for solving a problem begins with basic knowledge and skills and proceeds through four steps:

- Step 1: Identify problem, information, questions
- Step 2: Explore, interpret, make connections, organize information
- Step 3: Analyze, prioritize options, implement conclusions
- Step 4: Envision, endorse, explain, integrate, and innovate.

By moving through these steps as a means to solve problems, students are participating in the active use of critical thinking skills. Wolcott and Cindy L. Lynch co-authored a paper on “Helping Your Student Develop Critical Thinking Skills” where they assert:

Effective personal and professional functioning requires dealing with open-ended problems that are fraught with significant and enduring uncertainties about such issues as the scope of the problem, interpretation of relevant information, range of solution options, and potential outcomes of various options. (1)

Wolcott’s work on problem-solving and thinking performance patterns, as well as her use of case-studies and discussion groups, has informed many phases of the ThinkAchieve plan.

## Justification for Integration of Theme and Best Practices

At UTC, we know that critical thinking is not effectively achieved through stand-alone instruction. We also know that broad-based student experience will only be truly enhanced through a fully integrated program. Garrison affirms this knowledge with the assertion that critical thinking is taught, practiced, and learned in a spiral manner. Leskes and Miller argue that teaching of the skill cannot be left to “the sole province of any single course or faculty member” (iv). The AAC&U, in their “Statement on Integrative Learning,” makes a similar assertion:

Fostering students’ abilities to integrate learning – across courses, over time, and between campus and community life – is one of the most important goals and challenges of higher education. . . . an emphasis on integrative learning can help undergraduates put the pieces together and develop habits of mind that prepare them to make informed judgments in the conduct of personal, professional, and civic life.

Perhaps most convincing is the work of Donald Hatcher. His 2006 research into the data reveals “an integrated approach to teaching CT yields greater pre- to posttest gains on a variety of standardized CT tests than a typical stand-alone CT/informal logic course” (247). The ThinkAchieve program, therefore, must provide a coordinated, cohesive curriculum for all students.

Angelo suggests that critical thinking can be most effectively improved through three means: “student discussion; explicit emphasis on problem-solving, and verbalization of metacognitive strategies” (6). Recommended institutional programs to improve critical thinking include coordinated and targeted orientation and first-year experiences, service learning and experiential learning embedded throughout the curriculum, and capstones and culminating experiences (Leskes & Miller, 2008; Gilbert, Schilt & Sheldon, 2005; Stevenson, Duran, Barrett & Colarulli, 2005). As seen in the explanation below, ThinkAchieve: Creating Connections addresses each of these recommendations and links them in an integrated learning experience.



## THE QUALITY ENHANCEMENT PLAN

### THE VISION:

*to develop students who are competent in the areas of creative and critical thinking, capable of the integration and application of knowledge, and confident in the acquisition and development of new ideas and perspectives.*

## Overview and Goals

*Thinking critically – reflecting on the assumptions underlying our and others’ ideas and actions, and contemplating alternative ways of thinking and living – is one of the important ways in which we become adults. When we think critically, we come to our judgments, choices, and decisions for ourselves, instead of letting others do this on our behalf. (Brookfield x)*

ThinkAchieve: Creating Connections is an innovative program that uses critical thinking as the foundation for each of its student-centered links. The title of the program comes from our belief that students who have become competent in the areas of creative and critical thinking will achieve higher levels of success. Their success at becoming critical thinkers will fuel their achievements in academics and in their careers. We also know that critical thinking cannot be an isolated outcome and must be addressed within an integrated community of learning that emphasizes growth across multiple disciplines and experiences. To be effective in creating this integrated community of learning, we must begin by defining critical thinking. Our definition:

*Critical thinking is the habitual practice of raising questions, identifying problems, analyzing existing information, creating innovative solutions, and reflecting on the process and the product as a means of constant improvement.*

ThinkAchieve: Creating Connections will integrate this definition in the following student programs:

- ThinkAchieve: Introduction – pre-orientation and orientation programming,
- ThinkAchieve: In the Classroom – curricular integration, and
- ThinkAchieve: Beyond the Classroom – experiential learning.

These elements will be phased in over a period of five years and relate directly to the Mission and Strategic Plan of The University of Tennessee at Chattanooga.

Newly enrolled students will receive an introduction to critical thinking as part of an enhanced orientation session. They will begin to work with the ideas, skills, and habits of critical thinking through a new discussion session. They will encounter a consistent integration of critical thinking in and across all core curriculum areas, which will develop and enhance their critical thinking as they advance to courses within their disciplines. We will implement faculty development opportunities to encourage this integration, and we believe it is important to reward those faculty members achieving excellence in this area.

Experiential learning opportunities allow students to apply critical thinking outside of the classroom. These opportunities, which may or may not be tied to students’ individual programs of study, encourage students to refine their ability to think critically as they make connections between their academic course work and other life experiences. To increase involvement in these important experiences, we will develop a new program to track and reward student excellence within experiential learning. Some possible examples include service-learning projects, internships, community service, leadership and campus involvement, study-abroad experiences, and capstone experiences within each major. Though the experiences will be varied, the expectation and evaluation of student critical thinking will be uniform.



Undoubtedly, the most successful initiatives are those that establish specific goals or outcomes prior to implementation. At UTC, we agree, and thus, we have created the following statement of learning outcomes for all ThinkAchieve: Creating Connections programs:

*Students who have developed the habitual practice of critical thinking will*

1. *raise pertinent questions,*
2. *identify relevant problems,*
3. *analyze existing information,*
4. *create innovative solutions, and*
5. *reflect on their process and product to*
6. *seek ongoing improvement.*

These student learning outcomes are tied directly to our definition of critical thinking and are reflected in our vision statement. They will be used as guides in the planning and assessment of all ThinkAchieve programming.

## Connections with UTC's Strategic Plan

The University's 2008-2013 Strategic Plan, *We Shall Achieve: Critical Partnerships – A Pathway to Excellence*, develops more thoroughly our Mission as a metropolitan university “committed to excellence in teaching, research, and service, and dedicated to meeting the diverse needs of the region through strategic partnerships and community involvement” through four strategic initiatives. Before examining the strategic initiatives, we must acknowledge the connection between ThinkAchieve and the title of the Strategic Plan. *We Shall Achieve* has a long history with UTC; it is a generations-old motto that has been brought back to life in recent years. We are proud to be represented by this admirable refrain, and we see ThinkAchieve as a critical step in the ongoing process of making it a reality. Through ThinkAchieve: Creating Connections, UTC students will *Think* critically and *Achieve* much. To demonstrate those connections more specifically, the links between the strategic initiatives (italicized below) and ThinkAchieve: Creating Connections are listed here. All quoted passages come from the UTC Strategic Plan.

### *Partnerships for Students (Teaching & Learning)*

The ThinkAchieve program allows students to make connections that “provide distinctive educational experiences for students both in the classroom and beyond” through the integration of critical thinking across the disciplines and the enhancement of experiential learning programming. We agree that the departments should “be charged with deciding what experiences are appropriate for their majors and whether to embed the experience in existing courses and/or develop new ones;” therefore, we are tasking the departments with developing discipline-specific means to incorporate critical thinking. Additionally, the experiential learning program contributes to the University's plan to “develop a distinctive program that provides a concrete record of the mutual commitment between students and The University of Tennessee at Chattanooga to an engaged, educational experience both inside and outside the classroom.” ThinkAchieve: Creating Connections gives students the opportunities and provides that concrete record. Finally, ThinkAchieve: Creating Connections will “provide students with richer connections to the campus” through the enhancement of the orientation program as well as the experiential learning program. If students are more involved in campus activities, they should naturally become more connected to the campus community.

### *Partnerships for Education & Research*

By encouraging our students to engage in experiential learning outside the classroom, we will support the University's plan to "identify, develop, and deliver educational and research initiatives that build on university strengths and that meet the needs and opportunities within the business, social, and educational communities of the Chattanooga region." Our departments will know best how to meet those community needs, and the Experiential Learning Coordinator will facilitate the initiatives that arise from those community needs.

### *Partnerships for Diversity*

ThinkAchieve: Creating Connections will emphasize critical thinking from the moment a student enters UTC until the time of his/her graduation. This emphasis will increase student exposure to diverse peoples and opinions, which should increase tolerance and acceptance. Brookfield writes:

When we think critically we become aware of the diversity of values, behaviors, social structures, and artistic forms in the world. Through realizing this diversity, our commitments to our own values, actions, and social structures are informed by a sense of humility; we gain awareness that others in the world have the same sense of certainty we do – but about ideas, values, and actions that are completely contrary to our own" (5).

This cultural shift should make it possible for student groups to embrace diversity in all aspects of campus life. The improved orientation format and the focus on experiential learning will also result in increased retention and graduation rates for all students, including those the Strategic Plan calls "groups deemed to be underrepresented."

### *Enabling Partnerships*

One of the Strategic Plan action steps in this area was to establish "an Office of Outreach and Community Engagement." This office will be a vital instrument in the success of the experiential learning program. By providing a "gateway for the community to the campus," this office will be a significant link in the students' abilities to make connections outside of the classroom through experiential learning opportunities. The Experiential Learning Coordinator will work with this office to connect students to those community opportunities. As a metropolitan university, UTC recognizes the need to serve its surrounding community, and ThinkAchieve: Creating Connections will make this service much more possible as well as more visible on and off campus.



### LINK 1 –

#### ThinkAchieve: Introduction

*Effective personal and professional functioning requires dealing with open-ended problems that are fraught with significant and enduring uncertainties about such issues as the scope of the problem, interpretations of relevant information, range of solution options, and potential outcomes of various options. (Lynch and Wolcott)*

We want our incoming and transfer students to be introduced not only to the UTC campus but also to its community. ThinkAchieve: Creating Connections wants that community to be centered on creative and critical thinking. To foster this attitude and habit from the very beginning, we propose a pre-orientation and orientation program based on Wolcott's work with problem-solving. Halpern demonstrates the connection between creative thinking and problem-solving: "virtually every creative act involves a novel way of defining the problem and the selection of information that is relevant to reaching the goal" (409). Nickerson, Perkins, and Smith make that connection explicit by arguing, "creative thought cannot be uncritical" (89). By beginning their UTC experience with a focus on problem-solving, students will be introduced to the skills associated with creative and critical thinking and will receive early practice at identifying and using these skills.

The goals for the pre-orientation and orientation program are to introduce critical thinking and problem-solving concepts to incoming students, to ease the transition to college, to foster a community of learning among incoming students, and to create an expectation of academic rigor to prepare incoming students for university study. Students will:

- explore what it means to think critically, be creative in their problem solving, and apply basic analytical reasoning skills;
- participate as a member of an academic community;
- engage in reflection and dialogue;
- consider multiple perspectives to a problem or issue;
- participate in a shared experience with other students; and
- model the intellectual engagement that is expected in college work.

To achieve these ends, students will be asked to complete a pre-orientation module online before they arrive on campus. The module will provide a case study and questions asking students to develop an assessment of the case. We will ensure the case study is relevant to the student experience while still challenging students as they begin the process of problem-solving on their own.

Once they arrive on campus for orientation, students will attend a ThinkAchieve session. During this session, they will be introduced to ThinkAchieve: Creating Connections, where they will first hear UTC's definition of critical thinking. We want students to encounter this definition at orientation, so it will be familiar when they see it again in their course work. We will also use this time to introduce

students to the ThinkAchieve: Beyond the Classroom program and to encourage them to get involved in the UTC community right from the start.

Students will then be divided into small discussion groups (no more than 20 students). These discussion groups, facilitated by trained faculty and staff, will return to the case study from the pre-orientation module. Each group will work through the problem using the “Steps for Better Thinking” and “Real-World Problem” worksheets (see Appendix F) developed by Wolcott. Students will be expected to articulate their perspectives and to begin to understand the perspectives of others. They will interact more fully with each other and develop more authentic community. At the end of the discussion session, faculty and staff facilitators will evaluate the students to verify basic understanding of the critical thinking and problem-solving abilities that form the foundation for further university learning.

The case study format has been proven effective in many venues. Chun argues that this type of performance task will allow students to “gain the practice they need to be better critical thinkers when they face novel scenarios or problems, either within the same domain or across domains” (24). McDade supports the use of case studies, calling it “a particularly useful tool for advancing critical thinking because it actively involves students in their own learning process” (10). This format also encourages students to reflect upon their problem-solving process during the group discussion. Reflection has been proven to be a key component of the critical thinking process. Shulman asserts plainly: “Action without reflection is unlikely to produce learning” (41).

An additional benefit of introducing this problem-solving process in orientation is that it will also be used as a central component of the ThinkAchieve: Beyond the Classroom program. Student familiarity with the reflective tools and the overall process will make it more accessible to students as they enter the program. We will also distribute these materials to departments and encourage them to incorporate this process into their fields and specializations. Ideally, students will encounter this problem-solving process with enough frequency to make it second nature well before graduating from UTC.

By introducing this information at orientation, we will initiate a campus culture that insists upon the importance of critical thinking. It will also prepare students for the academic rigor that will challenge them in their coursework. We agree with Lisa Tsui’s assertion that “the development of authentic and independent critical thinkers entails inculcating the skills to assess and scrutinize ‘knowledge’ prior to its consumption” (434). Though this pre-orientation and orientation program will merely introduce these concepts, it will allow students access to and practice of these skills of scrutiny prior to the general education and disciplinary content that will require them.

**Link 2 –  
ThinkAchieve: In the Classroom**

*By connecting the various kinds of experience within our colleges and universities, we can amplify them all. . . . We need to combine these elements with a clear sense of purpose to protect and create – which are often the same thing – educational experiences of depth, breadth, intensity, and lasting meaning. We need an integrated vision, a broader understanding of how experiences either connect and strengthen or undercut one another. (Ayers)*

The emphasis on critical thinking and problem-solving skills will continue through UTC’s general education program and the disciplinary courses. We want to make sure ThinkAchieve and the critical thinking concepts are integrated across the curriculum, so every student has the greatest possible chance to achieve this habit of mind. The habitual nature of an ideal critical thinker has already been discussed here and by many scholars elsewhere. Halpern insists that “developing a critical thinking attitude is as important as developing thinking skills” (29).



As the literature has shown, this habitual pattern of thought is much more likely to be acquired through an integrative learning environment. Pat Hutchings argues that “integrative learning depends not only on special structures that exist at a few key points in the student’s experience but on a whole range of activities that can and should run *throughout* the student’s experience” (13). To be effective, ThinkAchieve: Creating Connections must be embraced by every department and discipline from the student’s first year to his/her final class.

Virginia S. Lee and Sarah Ash provide evidence of this point in their “Unifying the Undergraduate Curriculum through Inquiry-Guided Learning.” They explain that North Carolina State University instituted an inquiry-guided learning program requiring integration across the curriculum. To do so, they developed four learning outcomes for use across disciplines. “The outcomes offered a common language that provided unity to the undergraduate experience for faculty members and ultimately for students” (35). To conclude, they cite a 2001 study that indicated their students experienced significant gains in perception of higher-level cognitive skills after faculty made such changes as incorporating more active learning and critical thinking applications.

It is this gain in perception of cognitive skills that is so important at UTC. The NSSE and FSSE studies cited earlier revealed the large discrepancy between student and faculty perceptions of higher-level cognitive skills being exercised in the classroom. Many faculty members believe these skills are being taught, but our students are not fully aware of what they are being asked to do. ThinkAchieve: In the Classroom seeks to make those skills explicit and to see, as NC State did, that perception gap begin to diminish.

Therefore, like NC State, we will begin by identifying universal outcomes that will be applied and integrated into each discipline. The General Education committee will be tasked with developing these outcomes. The General Education program currently operates with the following student goals in mind:

- Think analytically, logically, creatively, reflectively, and sensitively about the human condition;
- Think analytically, logically, creatively, and reflectively about natural and abstract structures;
- Collect, process, interpret, and use quantitative and qualitative information using up-to-date methods, to define and defend viewpoints, solve problems, and make decisions;
- Communicate effectively, especially in speech and in writing; engage in civil debate; and collaborate on common tasks;
- Incorporate into their world views a comparative, historical, and global perspective on the diversity of the human experience, including the complex factors that shape individuals, societies, civilizations and knowledge.



While much of the language already reflects the ThinkAchieve: Creating Connections goals, the committee will refine the outcomes specific to ThinkAchieve in the academic curricula and distribute these as part of our efforts to unify and create that “common language.”

Once the General Education committee has established the outcomes, it will be the responsibility of the departments and disciplines to integrate those outcomes into their programs. We will also distribute the UTC definition of critical thinking and expect the departments to refine it as necessary and include it on all course syllabi. Beyond these two established sets of universal wording, we trust the departments to use their existing institutional effectiveness process to establish, maintain, and assess their focus on critical thinking in the classroom. Though it is not a requirement, we will distribute the Wolcott model of problem-solving and encourage all academic units to consider incorporating it into their curricula.

The institutional effectiveness process follows an annual cycle. Each academic program and support unit identifies three to five expected outcomes which are consistent with the program’s mission, the UTC Strategic Plan, and the priorities of the University’s governance bodies. These outcomes are documented in the TaskStream workspace assigned to each program and support unit. The extent to which expected outcomes are achieved is measured by the development of an assessment plan which defines appropriate targets and means for measuring each outcome. The assessment plan is also recorded in the TaskStream work space. Evidence is then collected to determine if the outcomes have been attained. At the end of the academic year, assessment results are attached to the annual assessment plan, and attainment of outcomes is determined. In cases where evaluation by appropriate faculty and staff determine that outcomes were not fully attained, inappropriately assessed, or where the target was too high or too low, a plan for improvement is devised. The completed assessment plan is sent to the college dean or other supervisor for review. Upon completion of the assessment process, the plan is implemented for the next academic year.

To ensure the integration of ThinkAchieve: Creating Connections, each department will be required to either create new or tag existing outcomes (at least one) as a ThinkAchieve Student Learning Outcome that aligns with the University-wide outcomes as developed by the General Education committee. This process will allow for regular assessment and innovation at the departmental level and will make more visible the critical thinking instruction across the campus. Curricular integration will also include departments and disciplinary teams leveling skills across the curriculum, outlining explicit course level expectations, and then identifying assignments and activities that continuously build critical thinking skills within the disciplines and majors.

In addition to the student learning benefits, incorporating critical thinking into every discipline will improve the discipline itself. The Foundation for Critical Thinking makes the connection clear: “Thinking is not driven by answers but by questions. . . . Every field stays alive only to the extent that fresh questions are generated and taken seriously as the driving force in a process of thinking” (“The Role of Questions”). Identifying a problem or weakness is a crucial step to making discoveries or developing innovations within a field. Once this habit of mind is set into motion, we can expect to see greater academic achievement within each department. “Students need questions to turn on their intellectual engines and they need to generate questions from our questions to get their thinking to go somewhere” (“The Role of Questions”). Only through being encouraged to “go somewhere” within their chosen fields will students understand what it means to truly be a part of the community of thinkers in that discipline.

When a student nears the end of his/her university study, he or she should participate in some kind of capstone or culminating experience. According to Goldstein and Fernald, capstone courses “provide students with the opportunity both to reflect on their academic experiences in previous courses and to apply outside of academia what they have learned in professional settings” (27) and “should also prompt self-examination leading to both personal and professional growth” (28). The 2007 Report of the National Survey of Student Engagement notes senior culminating experiences as one of the “high-impact activities” that resulted in increased levels of “deep learning” and larger gains in both personal development and learning. This survey also notes that only 29% of seniors at public universities participated in some kind of culminating experience as opposed to 42% at private colleges and universities (13).

At UTC, many disciplines already have culminating experiences or capstone courses. For those programs and units that do not, the ThinkAchieve program will encourage them to create such an opportunity and to use it as a means to measure critical thinking along with discipline-specific knowledge and skills. Paul Sum and Stephen Light review the literature on assessment through capstone courses and find “many programs are turning to the capstone as a primary source of information about the quality of instruction (Black and Hundley 2004), programmatic effectiveness (Wagenaar 1993), and the extent to which institution-wide goals are met (Henscheid 2000)” (524). Sum and Light also indicate the common effect of a capstone course upon a department: curricular change in response to achievement of student outcomes (526). The assessment accomplished through these courses will feed into the annual institutional effectiveness process within each department and foster ongoing growth and curricular improvement.

After the University-wide ThinkAchieve learning outcomes are incorporated into the disciplines, we expect to see more capstone courses developed as part of an overall program of student assessment at the departmental level. Additionally, these capstone courses and culminating experiences often take place outside the classroom, and the ThinkAchieve: Beyond the Classroom component will create more incentive for participation in such opportunities.



**Link3 –  
ThinkAchieve: Beyond the Classroom**

*Students need not only to learn a good deal about the world and their place in it. They also must learn how to use knowledge and reflection to inform their judgment in complex situations. And they need educational experiences that can spur them to shape their own lives for critical engagement with their future careers and responsibilities. (Sullivan)*



It has been shown that critical and creative thinking can be developed through active or experiential learning. At UTC, there are many disciplines and departments that already shape opportunities beyond the classroom to allow students to apply curricular material in a practical setting. Additionally, the Student Development division offers a number of co-curricular activities and opportunities for student engagement. Unfortunately, these are often discrete experiences with little common ground for students to make connections between the skills they engender. ThinkAchieve: Beyond the

Classroom recognizes the value of these opportunities and offers a means to unify these efforts and encourage, track, and reward participation in such activities.

In the early planning stages, we were inspired by the EYE (Experience Your Education) program developed by Lander University, where students can participate in a variety of experiential and service learning opportunities and receive co-curricular “credit” for them. They can earn honors and recognition at graduation through participation in the program. They also utilize a critical thinking rubric (see Appendix C) as an assessment tool. We recognize the value of these elements and thus, have adopted similar concepts in our ThinkAchieve: Beyond the Classroom program.

ThinkAchieve: Beyond the Classroom will ask students to examine, apply, practice, and reflect upon critical thinking skills within approved experiential learning experiences. The planned activities can include both credit and non-credit activities. For inclusion in the program, faculty or staff sponsors will be required to submit an application describing the experience and demonstrating its connection to the ThinkAchieve outcomes. Besides specific course-related service-learning opportunities, these activities could include a variety of other activities: study abroad and international exchange programs, internships and cooperative education programs, co-curricular learning experiences coordinated by Student Development and student groups, capstone and culminating experiences, and other service-learning opportunities through departments and other campus groups.

Once approved, each activity will be assigned a point value student participants can earn in the ThinkAchieve Student Awards program. Each approved activity will be published in a searchable list online and in published literature advertising the program. Participants will be evaluated at the conclusion of each activity to determine if learning and development of critical thinking skills have been achieved. A rubric for evaluating critical thinking will be used by each qualifying program (See Appendix C for sample rubrics).





The ThinkAchieve Student Awards program will track student participation in approved activities through a new co-curricular transcript within the student information system. It will also reward students who graduate from UTC with an established number of points amassed within the program. There will be an annual ceremony celebrating their success, and ThinkAchieve Student Award recipients will be recognized and honored at graduation ceremonies.

The ThinkAchieve Student Awards program will be managed by the Coordinator of Experiential Learning, a new position housed in the Center for Advisement and Student Success under the direction of

the Assistant Provost for Student Success and Retention. The Coordinator will also work with faculty and the Walker Teaching Resource Center (WTRC) personnel to design service and experiential learning opportunities, connect students with available opportunities by maintaining the published lists of ThinkAchieve Award opportunities, and coordinate community opportunities with the various offices throughout campus. (See Appendix C for full job description.) In addition, the person in this position will work with the Information Technology Division (ITD) to coordinate the implementation and maintenance of the new co-curricular student transcript.

This program will build upon the work being done in orientation and within the curriculum of each discipline by utilizing Wolcott's problem-solving process and reflection tools as a means of developing critical thinking in student participants. It will also strengthen the institutional culture of student engagement that Tsui and others find so crucial to student success. It will integrate critical thinking and problem-solving into what Haefner and Ford call the "complete learning environment": "not just the academic core but all learning experiences, especially those that happen outside the classroom. In essence, the entire campus is a learning environment that should be tapped for the total learning experience" (50). Students who participate in the ThinkAchieve: Beyond the Classroom program will be shown the connections between what is happening within their academic curriculum and what is happening in the world around them. They will be better prepared to achieve and contribute to society through participation in and reflection on these experiences.



Student involvement in academic and co-curricular activities has been shown to have a positive impact on student learning. In 2003, Sedlak, Doheny, Panther, and Anaya published the results of their qualitative study of the critical thinking skills of students who were involved in service-learning projects. They used student reflections to determine that the service-learning activities increased student critical thinking skills like identifying assumptions and generating solutions. Gellin relied on statistical analysis to determine that "undergraduate students involved in a variety of activities outside the classroom experienced a .14 effect gain in critical thinking compared to students who were not involved" (752). Huang and Chang affirm these reports: "Within each level of academic involvement,

students in patterns characterized by higher cocurricular involvement levels scored higher on the cognitive skills variable” (399).

Beyond the intellectual value added from student experiences outside the classroom, ThinkAchieve: Beyond the Classroom places a strong emphasis on reflection. To receive credit for participating in approved activities, students will be required to complete an assessment/reflection process for each activity. Wolcott and Lynch offer suggestions for reflection questions in their table on “The Reflective Judgment Model” that are mirrored in the “Describing Your Approach to a Real-World Problem” worksheets (See Appendix F). These worksheets are the basis for the orientation discussion sessions, so students will already be familiar with this kind of reflective questioning. Peter Ewell argues that “learning requires reflection. . . . Absent reflection, solving “presenting problems” usually ends learning encounters at a point well short of the cognitive reorganization that deep learning requires” (52-53). Shulman makes the process more precise: “Critical reflection on one’s practice and understanding leads to higher-order thinking in the form of a capacity to exercise judgment in the face of uncertainty and to create designs in the presence of constraints and unpredictability” (38). We agree with these experts on the power and importance of reflection and believe the ThinkAchieve: Beyond the Classroom offers the best chance for full integration of this important element of critical thinking.

A final element to explain our focus on experiential learning is one that is less tangible and harder to assess but extremely important to the overall development of the student. Critical thinking is a



crucial skill to develop for success in academics and professional life, but it could be an isolating and empty pursuit without the proper externalizing elements. Michael Roth insists that “critical thinking is sterile without the capacity for empathy and comprehension that stretches the self” (B4). When we exhort our students to achieve, we mean more than simply monetary or professional success, though these elements are not unimportant; rather, we want them to achieve success as citizens, contributors to the greater good of society. We believe that early and frequent

exposure to outside opportunities for service and experience will “stretch the self” and increase their likelihood of success in this crucial area.

## Elements to Support Programmatic Initiatives

### Faculty and Staff Development

*We cannot force faculty to place thinking at the center of their teaching. But we can create an atmosphere that places thinking at the focal point of [our] philosophy, mission and goals. We can provide support for faculty to learn the foundations of critical thinking, so that they can begin to integrate it into their teaching. . . . We can provide incentives for faculty to foster intellectual development. (Elder)*

The success of ThinkAchieve: Creating Connections lies with the support and cooperation of faculty and staff members within all departments and support units across the campus. We understand that many faculty members already incorporate critical thinking in their instruction. We also recognize that faculty and staff need the freedom to acknowledge, recognize, and share current practices that fulfill our critical thinking objectives while simultaneously working to create, support, and adopt new strategies to build on our existing strengths. The research has shown that critical thinking is best acquired through active learning. The integration of this active learning approach may initially be uncomfortable for both students and faculty (Duron, Limbach, and Waugh) and thus, might be resisted. To accomplish this integration effectively and to overcome any possible resistance, faculty must engage in ongoing professional development related to the teaching and learning of critical thinking.

Faculty and staff will need resources and professional development opportunities focused on the implementation of successful critical thinking skills and objectives within their courses and disciplines and on the design of co-curricular experiential activities. Faculty also need resources and professional development opportunities to learn how to plan effective experiential and culminating learning activities linked to courses and student learning outcomes within the disciplines.

Departments and their faculty and staff members are critical players in the development and implementation of ThinkAchieve: Creating Connections. Departments are responsible for developing specific curricula that incorporate the broader University goals of ThinkAchieve within the specialized focus of each discipline. Departments are responsible for supporting and encouraging all faculty and staff – tenured, tenure-track, full-time, part-time, and adjunct positions – in the development of critical thinking goals throughout general education courses and within each discipline. Beyond these specific responsibilities, the larger goal of the professional development component is to develop well-informed and knowledgeable departments within the University that demonstrate how best to identify and integrate critical thinking into the curricula and to provide students with the highest-quality learning experience at UTC.

### Training and Awareness

Faculty and staff awareness of global critical thinking skills in the curricula will require a multifaceted approach that incorporates education and training about critical thinking in general; critical thinking teaching strategies; assessment of critical thinking within general education courses and disciplinary/major coursework; and developing, designing, and implementing curricular and co-curricular experiential programs designed to enhance critical thinking. To achieve these ends, UTC will provide a comprehensive faculty development program through the Walker Teaching Resource Center (WTRC).

An enhanced new faculty and adjunct orientation program will introduce the ThinkAchieve programs, define general critical thinking skills, demonstrate how to teach those skills within disciplinary areas, and model how to help students achieve those skills. Ongoing faculty and professional development will be offered through seminars and workshops, institutes focused on assessing critical thinking, and a resource collection on critical thinking research and teaching strategies. Professional development programming will also be designed around training faculty to score the Critical Thinking Assessment Test (CAT). Each year, a few faculty will attend the CAT Train-the-Trainer Regional Conference and then return to train faculty and staff on the UTC campus.

UTC's Walker Teaching Resource Center will develop a collection of resources on best practices for teaching strategies to improve critical thinking and problem-solving skills through courses and experiential activities. For example, a blog may be used to facilitate informal faculty and staff interaction and discussion of teaching critical thinking. Additionally, the Center will coordinate an accessible collection of teaching strategies used by UTC faculty to promote sharing of these strategies.

### **ThinkAchieve Learning Communities**

Much discussion has occurred in academia concerning student learning communities. Many universities have instituted learning communities, especially as part of a complete first-year experience. At UTC, we find the research compelling and think the concepts are applicable at the faculty and staff level as well. Halpern argues that faculty often benefit from a cross-campus dialogue with colleagues on methods of teaching critical thinking and further incorporating such initiatives in the classroom. Thus, we propose the creation of ThinkAchieve Learning Communities for faculty and staff. These learning communities will explore critical thinking within disciplines and outline assessment strategies particular to specific disciplinary areas. The members of the Learning Communities will then act as mentors to other faculty within the disciplines. Other learning communities may include groups that explore teaching strategies, assessment techniques, and training on the CAT. ThinkAchieve Learning Communities will be coordinated by the faculty developers in the Walker Teaching Resource Center.

By promoting a dialogue, these learning communities can provide an environment that allows faculty and staff to share information and mentor each other on critical thinking. Members of the learning communities can then return to their respective departments or areas to share information and knowledge with colleagues. These learning communities will be able to interact with the General Education Committee (and other institutional committees) to address issues involving helping students achieve the General Education critical thinking outcomes. Moreover, the inclusion of faculty and staff from different departments in the learning communities will promote cross-disciplinary course development as personal and professional relationships grow.

### **ThinkAchieve Faculty Mentor Awards**

As faculty learn more about critical thinking, they will undoubtedly begin to innovate in the classroom and beyond. To encourage such innovation, we will institute the ThinkAchieve Faculty Mentor Awards. These awards will honor exceptional critical thinking pedagogical initiatives through an award and recognition as a Faculty Mentor. Faculty nominated for the award (self-nomination will be possible) will be evaluated through a peer review process. A committee drawn from the ThinkAchieve Learning Communities will observe classroom teaching, evaluate syllabi and course materials, and review student evaluations to determine the annual recipients.

The ThinkAchieve Faculty Mentor Award will include a stipend and a course release (re-assignment), which will allow the recipient to serve as a master teacher – a teacher of teachers – and mentor for one year. As a Faculty Mentor, the individual will work with the Walker Teaching Resource Center to provide opportunities to engage UTC’s teaching community in how to advance effective critical thinking pedagogy. Each Faculty Mentor will be expected to host a workshop on critical thinking during his/her year of service.

### **ThinkAchieve Development Grants**

For true integration to take place, we need also to create incentives for further development of experiential learning opportunities. The ThinkAchieve Development Grants will provide small grants to fund the design and implementation of experiential learning opportunities by faculty and staff. Christina Butler cites the experience of Ohio Dominican College in her article on mini-grants as a faculty development tool. Butler concludes that their “experience with small faculty development grants has shown that they can be a powerful stimulator of innovative projects and that a small amount of money (\$2000-\$4000) can sometimes produce astounding results” (86). The ThinkAchieve Development Grants will be similarly-funded, and we hope they will produce similar results.

During the first year of the plan, an institutional ThinkAchieve Development Grants Committee will be formed to outline the specific goals and guidelines for the grants program, any related timelines and forms necessary for the program, and an evaluation plan for the mini-grants program. We anticipate that the first grants will be awarded by the middle of the first year of this plan’s implementation.



**ASSESSMENT OF THINKACHIEVE:  
CREATING CONNECTIONS**

## Institutional Level Assessments

### Assessment of Student Critical Thinking

ThinkAchieve: Creating Connections operates under the following vision or goal: *to develop students who are competent in the areas of creative and critical thinking, capable of the integration and application of knowledge, and confident in the acquisition and development of new ideas and perspectives.* Achievement of this goal will primarily be assessed through yearly administration of the Critical Thinking Assessment Test (CAT) developed by Tennessee Tech University. Their website defines the CAT as “a unique tool designed to assess and promote the improvement of critical thinking and real-world problem solving skills.” The role of the CAT is to assist faculty in assessing students’ critical thinking skills early in their career at UTC. To facilitate this process, a select group of faculty will learn to score the CAT as a part of the faculty development programming each year. By Year Five of the plan, all departments will have participated in the testing and development of critical thinking improvement processes and outcomes.



We will administer the CAT to students during their first year to establish an institutional baseline. Graduating seniors will also take the CAT, providing data to judge overall institutional progress as well as improvement in the results over the course of the five-year plan. We will also look for overall improvement in the critical thinking sub-scores of the ETS Proficiency Profile Exam (PPE) administered to graduating seniors as a part of the Tennessee Higher Education Commission (THEC) reporting data. We believe ThinkAchieve: Creating Connections will make critical thinking and problem-solving skills more intentional and obvious for students. Thus, the institution will administer both the National Survey of Student Engagement (NSSE) and Faculty Survey of Student Engagement (FSSE) to see if student and faculty perceptions begin to align and reflect the intended outcomes beyond memorizing facts.

We also have identified the following student learning outcomes:

*Students who have developed the habitual practice of critical thinking will*

- 1. raise pertinent questions,*
- 2. identify relevant problems,*
- 3. analyze existing information,*
- 4. create innovative solutions, and*
- 5. reflect on their process and product to*
- 6. seek ongoing improvement.*

See the table on the following page for the progression of these outcomes through the programmatic links and our anticipated means of assessment.

## Assessment of Student Learning Outcomes

Student Learning Outcome	Pre-Orientation / Orientation	In the Classroom	Beyond the Classroom	Assessment Tool(s)
Raise Pertinent Questions	Introduced	Reinforced Mastered	Reinforced Mastered	CAT NSSE FSSE ETS PPE
Identify Relevant Problems	Introduced	Reinforced Mastered	Reinforced Mastered	CAT NSSE FSSE ETS PPE
Analyze Existing Information	Introduced	Reinforced Mastered	Reinforced Mastered	CAT NSSE FSSE ETS PPE
Create Innovative Solutions	Introduced	Reinforced Mastered	Reinforced Mastered	CAT NSSE FSSE ETS PPE
Reflect on Process and Product	Introduced	Reinforced Mastered	Reinforced Mastered	ThinkAchieve Awards Student Reflection Tool CAT NSSE Student Surveys
Seek Ongoing Improvement	Introduced	Reinforced Mastered	Reinforced Mastered	ThinkAchieve Awards Student Reflection Tool Student Surveys

We will also assess the achievement of these elements through several direct surveys. Because UTC already conducts a regular survey of recent graduates, we will merely request they add a section on critical thinking to their existing survey. The questions will address both the critical thinking skills students feel they learned at UTC as well as the ways in which they find themselves applying these skills in the workplace. Additionally, UTC will conduct surveys of area employers to determine if they are satisfied with the critical thinking skills of their UTC alumni employees. These data will help us shape the programming and determine the successful transfer of ThinkAchieve: Creating Connections material to real-world applications.

While we recognize our ultimate assessment will be that our students become better critical thinkers, we also need to assess each programmatic thread and each of the institutional programs to see if they are helping our students. Thus, we will also evaluate the effectiveness of each ThinkAchieve: Creating Connections link, the mini-grants program, and all individual faculty development offerings.



## Assessment of Link 1 – ThinkAchieve: Introduction

The pre-orientation online module will be developed this spring and piloted with current students. This early pilot process will allow the developers to revise before administering to two orientation sessions during the summer of 2011 (one incoming freshman orientation and one transfer orientation session). These two groups will be asked to evaluate the online component before attending the orientation session. After the orientation discussion sessions are completed, faculty, staff, and students will complete an evaluation of the whole program. Revisions will be made to both the online module and the discussion sessions before full implementation in the 2012 orientation sessions.

Once full implementation is achieved, we will continue ongoing assessment and improvement of the program. Faculty and staff facilitating the orientation focus groups will use a rubric to assess student engagement in critical thinking, creativity in his/her problem solving, ability to apply basic analytical reasoning skills, willingness to engage in reflection and dialogue, and ability to consider multiple perspectives to a problem or issue. We will use these assessments to determine if critical thinking is being adequately introduced and will make programmatic adjustments as necessary. Finally, we will make use of student reflections on the orientation experience to foster ongoing growth in the program.

## Assessment of Link 2 – ThinkAchieve: In the Classroom



The goal of the curricular integration program is that students will improve their critical thinking skills across disciplinary boundaries and apply those skills within their selected major/discipline. To ensure this goal is being met, departments will develop and implement assessment plans related to the disciplinary curriculum and will communicate student learning outcomes through syllabi and the catalog. We will distribute the student learning outcomes of ThinkAchieve: Creating Connections to each department and ask that they refer to them when designing student programming. Also, the

General Education Committee will outline levels of achievement (benchmarks) for each related critical thinking outcome as well as develop and implement assessments for general education curricula at the foundational levels.

As explained above, the integration of critical thinking will occur through the existing planning and assessment tool for Institutional Effectiveness. This method will make sure the evaluation and improvement of critical thinking instruction is ongoing and dynamic. Additionally, we will encourage all programs utilizing a capstone course to incorporate a metric whereby critical thinking at the discipline level can be assessed within the department. These data will serve the departments as well as the overall institutional development.

Finally, we believe that student perception is important, so we will encourage departments to close the loop by adding a department-specific question to the existing course evaluation administered each semester. This question (or questions) could be designed to provide departments with data specific to their ThinkAchieve learning outcomes and would reinforce the importance of critical thinking in the coursework. This reinforcement will increase student

awareness of the issue while also providing faculty with individual feedback on their curricular integration efforts.

### **Assessment of Link 3 – ThinkAchieve: Beyond the Classroom**

The goals of ThinkAchieve: Beyond the Classroom are to provide students with a variety of experiential learning opportunities both in and out of the classroom that allow them to practice, reflect on, and strengthen their critical thinking skills. We anticipate that UTC graduating seniors who participate in the ThinkAchieve Student Awards Program will have higher scores on the critical thinking portion of the ETS Proficiency Profile Exam (PPE) and CAT when compared to students who did not participate.

Assessment of this program will entail qualitative assessment of student artifacts, including the reflection component completed after each ThinkAchieve activity. These reflections will illustrate students' capability to connect, relate, and integrate classroom learning within a real-world environment. They will also provide evidence of the problem-solving process and critical thinking skills used during the activity.



In addition, the program will be assessed by the number and percentage of graduating seniors who earn ThinkAchieve Student Awards, the number and types of activities approved for ThinkAchieve Student Award points, and related student participation for each approved activity. Though not a flawless measure of success, growth in all areas of participation should reflect programmatic success. Indirect measures will include student surveys to assess why students decided to participate and their perceived value from participation. Faculty surveys will also be used to determine perceived academic value from student participation in the experiential learning programs.

As more students participate in the ThinkAchieve Student Awards program, we expect improved overall scores on the institutional ETS Proficiency Profile Exam (PPE). We plan to compare data on the CAT and PPE between students who participated in the ThinkAchieve Student Awards program and those who did not to determine if there are differences in the critical thinking scores.

### **Assessment of Professional and Faculty Development Programming**

Each of the professional development programs will be consistently evaluated as they are implemented to determine which programs are helpful to faculty and staff and to collect additional ideas to enhance the professional development programming. As indicated by data collected through these programs, additional professional development programs will be planned and implemented.

**Table for Assessment of Programmatic Links**

Programmatic Link	Student Outcome(s)	Assessment Mechanism	Who
Pre-orientation and Orientation	<ul style="list-style-type: none"> <li>• Explore critical thinking and problem-solving concepts</li> <li>• Participate in a community of learning</li> <li>• Model the intellectual rigor expected in college work</li> <li>• Engage in reflection and dialogue</li> </ul>	<ul style="list-style-type: none"> <li>• Rubric</li> <li>• Student Reflection</li> <li>• NSSE</li> <li>• FSSE</li> <li>• Faculty &amp; Student Survey</li> </ul>	<ul style="list-style-type: none"> <li>• Student Success Center</li> <li>• Orientation Office</li> </ul>
In the Classroom	<ul style="list-style-type: none"> <li>• Think critically, be creative in problem solving, and apply basic analytical reasoning skills</li> <li>• Engage in reflection and dialogue</li> <li>• Consider multiple perspectives to a problem or issue</li> </ul>	<ul style="list-style-type: none"> <li>• CAT</li> <li>• ETS PPE</li> <li>• NSSE</li> <li>• FSSE</li> <li>• Departmental Institutional Effectiveness data</li> <li>• Capstone metric</li> <li>• Department data from course evaluations</li> </ul>	<ul style="list-style-type: none"> <li>• Departments</li> <li>• Department Heads</li> <li>• Deans</li> <li>• Institutional Research</li> </ul>
Beyond the Classroom	<ul style="list-style-type: none"> <li>• Examine, apply, practice, and reflect upon critical thinking skills within approved experiential learning experiences</li> <li>• Perceive connections between academic curriculum and society</li> <li>• Prepare for achievement and contribution to society</li> </ul>	<ul style="list-style-type: none"> <li>• Number of programs approved</li> <li>• Student assessment</li> <li>• Student participation</li> <li>• Reflection</li> <li>• CAT</li> <li>• ETS PPE</li> <li>• Departmental Institutional Effectiveness data</li> <li>• Community Partner Surveys</li> </ul>	<ul style="list-style-type: none"> <li>• Departments</li> <li>• Department Heads</li> <li>• Deans</li> <li>• Institutional Research</li> <li>• ThinkAchieve Awards Task Force</li> </ul>

# Think Achieve



CREATING CONNECTIONS

**INSTITUTIONAL CAPACITY  
AND SUPPORT**

## Organization and Administrative Overview

Improving student critical thinking skills requires a commitment on the part of the University to increase the focus on critical thinking within the classroom and to provide students with experiences for practical application of those critical thinking skills. With the implementation of ThinkAchieve: Creating Connections, students who graduate from UTC will not only be able to recall information but will also reason at a higher level of competency. For the three programs to be successful, several institutional programs will need to be implemented: faculty and staff development, coordination of the pre-orientation and orientation segments, and coordination of the ThinkAchieve Student Awards Program, including the development of the co-curricular transcript.

The three programs will be supported and integrated through the current organization by adding several positions and by delegating some programs to existing units. First, the current QEP Committee will be reconstituted as the ThinkAchieve Advisory Board to serve in an advisory capacity to all groups working on ThinkAchieve: Creating Connections over the course of the five-year plan.

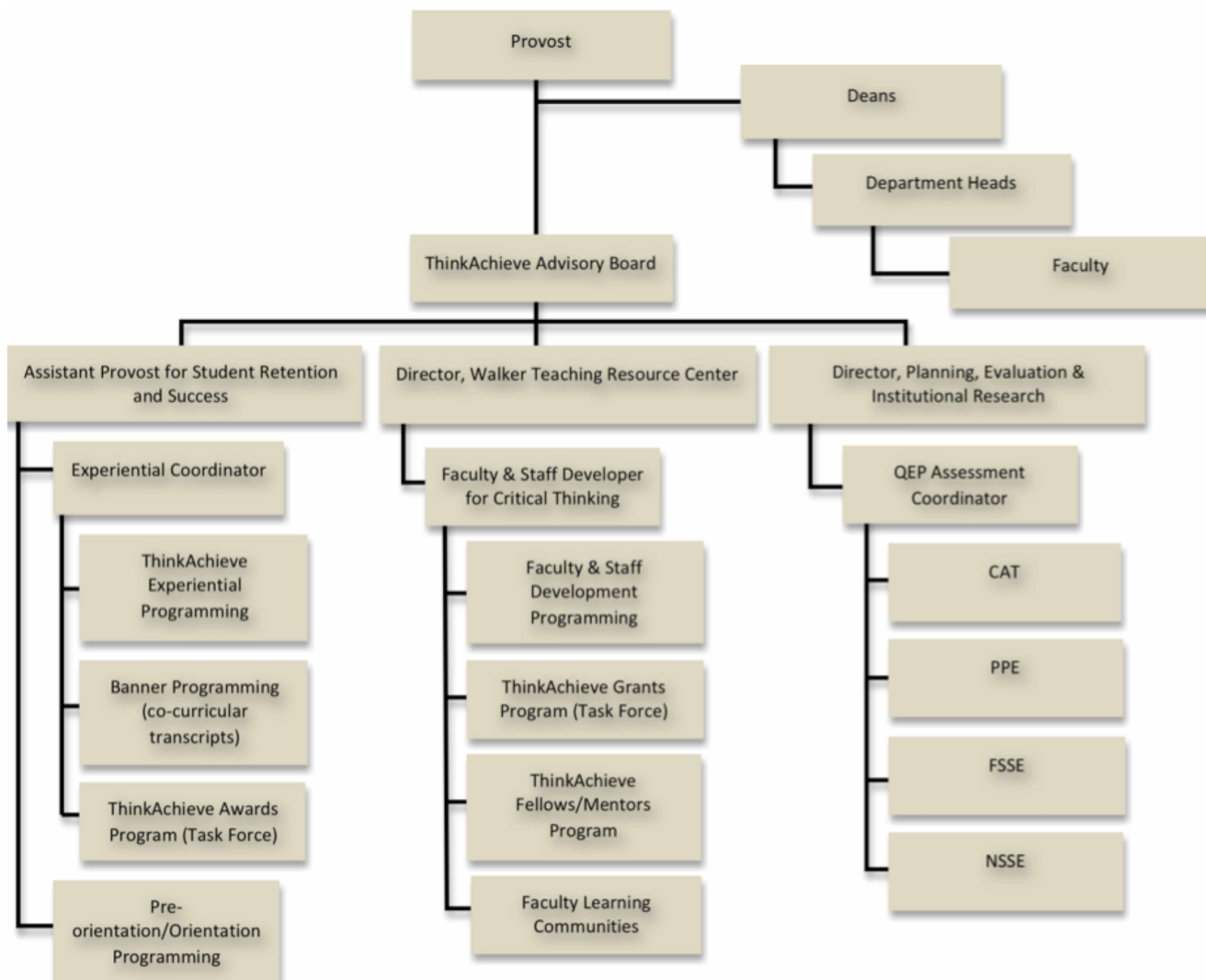
The pre-orientation online program will be designed and developed by a team representing the Orientation Office, the Center for Advisement and Student Success, and the Walker Teaching Resource Center. The Center for Advisement and Student Success, under the direction of the Assistant Provost for Student Retention and Success, will coordinate and oversee the training of faculty and staff to facilitate the orientation focus groups.

A new position, that of Coordinator of Experiential Learning, (see Appendix C for full job description) will be added in the first year to coordinate the design and development of the co-curricular transcript and all activities related to the experiential learning programs. The person in this position will report to the Assistant Provost for Student Retention and Success and will also be charged with maintaining the published list of approved experiential programs. The Coordinator will also work with a newly-formed Task Force to define the framework for the ThinkAchieve Student Awards program, including such tasks as developing criteria for approving activities, determining the points system and award levels, and crafting the student reflection and evaluation component.

An additional Faculty Development Specialist will be hired for the Walker Teaching Resource Center to coordinate professional development programming to support the curricular integration, teaching strategies, learning communities, Faculty Mentor program, and other faculty and staff development programming necessary. The person in this position will coordinate attendance at the CAT training conference each year and the subsequent training of campus faculty to assess and score the CAT tests and work with a newly-formed Task Force to develop and coordinate the ThinkAchieve Development Grants program (see Appendix D for full job description).

A Coordinator of QEP Assessment will be added to the Office of Planning, Evaluation and Institutional Research to manage the additional testing of incoming students and to coordinate a more expansive testing program for graduating seniors. This position will report to the Director of the Office of Planning, Evaluation and Institutional Research. (See Appendix E for full job description).

## Organizational Chart



### Implementation Plan (see Appendix G)

All ThinkAchieve programs will be rolled out over the first two years of the QEP timeframe. Pre-orientation/orientation modules will be designed and piloted with two orientation sessions during the summer of 2011, and the program will be fully implemented by the 2012 orientation sessions. During the first year, two Task Forces will be created and charged: the ThinkAchieve Development Grants Task Force and the ThinkAchieve Student Awards Task Force. Also during the first year, the Coordinator of Experiential Learning, the Critical Thinking Faculty Development Specialist, and the Coordinator of QEP Assessment will be hired. Faculty and professional development programs will begin by exploring teaching strategies and critical thinking assessment strategies. Departmental curricular integration work will begin during the first year with the expectation that ThinkAchieve

Student Learning Outcomes will be specified and assessment plans developed by the end of the first year (Spring 2012). The design and development of the co-curricular transcript options will also be completed by the end of the first year with the ThinkAchieve Student Awards program rolling out in the second year.

The ThinkAchieve Development Grants will be available starting in the second year of implementation to support the curricular integration. The online resources and database of experiential learning opportunities will begin during the second year of implementation.

The Faculty Mentors program and Learning Communities will begin during the first year of implementation. By the end of the second year of implementation, all ThinkAchieve: Creating Connections programs and institutional support will be in place and ready for assessment by the end of the second full year.

### **Implementation Plan Prior to Year One (Summer 2011)**

After approval, UTC will design and revise the pre-orientation/orientation materials, pilot them with current students, and assess the pilot material for revision. We plan to implement the online module and the discussion session in one freshman orientation session and one transfer orientation session during the summer 2011 sessions. These test groups will be assessed, and the online module and group discussion structure will be revised as necessary based on the feedback.

During the spring of 2011, faculty representatives will also attend a CAT Train-the-Trainer Conference to prepare for faculty development sessions to be held in the fall of 2011. Additional faculty development needs will be assessed to prepare for the faculty development programming for the first year of the program.

### **Implementation Plan Year One (2011-12 Academic Year)**

During the first year of the ThinkAchieve program, staff will be added (Faculty Development Specialist, Coordinator of Experiential Learning, and Coordinator of QEP Assessment). Two task forces will be formed to guide the ThinkAchieve Development Grants program and the ThinkAchieve Student Awards program. Other items to be completed (and assessed) during the first year of implementation include: roll out of the orientation modules to all freshman and transfer orientation sessions and design and implementation of the co-curricular transcript program.

An additional set of faculty and staff will be selected to attend the CAT Train-the-Trainer conference in spring 2012, and training sessions for faculty assessors will be held on the UTC campus during the summer of 2012. Additional faculty development sessions will be held on topics such as how to incorporate active learning strategies to increase critical thinking and assessment mechanisms to encourage student critical thinking and problem solving skills. Learning Communities will be formed around common faculty and staff interests in critical thinking. The Faculty Mentors Awards program will be started to select faculty mentors for the faculty learning communities and to expand the potential faculty development offerings across the campus.

An online database of resources will be designed, developed, and published to help faculty and staff with teaching and learning strategies and incorporating experiential learning opportunities.

The assessment program will administer the CAT, PPE, NSSE, and FSSE to provide baseline data for future comparisons for the ThinkAchieve programs.

## Implementation Plan Year Two (2012-13 Academic Year)

Each spring, the orientation staff will review and revise the pre-orientation online module and any materials/training associated with the orientation sessions. The ThinkAchieve programming will continue to be an important piece of orientation. At the conclusion of each session, the faculty and staff leaders will conduct assessments and evaluations of the program. These annual evaluations will provide a constant feedback loop to fuel any needed changes.

Ongoing faculty and professional development will occur in the second year of implementation. The new Faculty Mentors will conduct their workshops, and the ThinkAchieve Learning Communities will be active. Trained CAT assessors will hold training sessions at UTC and an additional set of faculty and staff will be selected to attend the CAT Train-the-Trainer. The Institutional Effectiveness data regarding critical thinking will be gathered and entered into TaskStream and used to improve departmental programming. In the Spring of 2013, new Faculty Mentors will be chosen and honored at graduation, and the first year of the program will be assessed in Summer of 2013. The ThinkAchieve Development grants will be launched by informing faculty and staff of the available opportunities and soliciting



applications. We expect to award the first ThinkAchieve Development grants by the end of year two. The online resources for faculty will be developed and maintained during year two, and the Learning Communities and Faculty Mentors will continue to contribute to these information sources.

The ThinkAchieve Student Awards program will be made public in the second year of implementation. It will be publicized fully to students and shared with faculty for further encouragement and involvement. The co-curricular transcript will enter into use and will be maintained by the Experiential Learning Coordinator. As students participate, we will see ongoing assessment and evaluation of each program. Also, as faculty learn more about the program, more activities will be submitted, and the Task Force will continue to approve programs as necessary.

The annual assessment process will continue in year two with the administration of the CAT, PPE, NSSE, and FSSE. The summer of 2013 will require the review of these data, especially in regard to the comparison of NSSE and FSSE results and the preparation of the Yearly Assessment reports.

All programs will be revised as needed based on evaluation, feedback, and assessment.

## Implementation Plan Year Three (2013-14 Academic Year)

Year three will bring many of the same actions seen in year two. Pre-orientation and orientation modules will continue to be revised, implemented, reviewed, and assessed. Faculty and professional development will continue as needed. The Learning Communities will continue to be active, and we will hope to see increased participation at this point. The Faculty Mentors will continue to be active in leadership in critical thinking pedagogy, and new faculty mentors will be selected and honored at the end of the year. More faculty will attend the CAT Train-the-Trainer session, and training will again occur at UTC. The online resources (both for faculty development and within the ThinkAchieve Student Awards program) will be maintained and updated as needed. Departmental Institutional Effectiveness data will be gathered and entered into the TaskStream program and used to improve



departmental curricula. The annual assessments and reviews of the data will continue unchanged as well.

One difference in year three will be the establishment of the ThinkAchieve Awards ceremony. This ceremony will be held in the spring of each academic year to honor those students who have earned the established number of points in the ThinkAchieve Student Awards program. Those graduating seniors with the total required points will also be honored at their graduation ceremony. The ThinkAchieve Awards ceremony could also be a place to award the Faculty Mentors Awards and to announce the recipients of the Development Grants. This ceremony will be coordinated by the Experiential Learning Coordinator and will become a highlight of the ThinkAchieve program.

### **Implementation Plan Year Four (2014-15 Academic Year)**

Year four will be almost identical to year three. Pre-orientation and orientation modules will continue to be revised, implemented, reviewed, and assessed. Faculty and professional development will continue as needed and through recommendations from faculty. The Learning Communities will continue to be active. The Faculty Mentors will continue to demonstrate leadership in critical thinking pedagogy, and new faculty mentors will be selected and honored at the end of the year. A new batch of development grants will be awarded, and assessment of the prior recipients' programs will occur. More faculty will attend the CAT Train-the-Trainer session, and training will again occur at UTC. The online resources (both for faculty development and within the ThinkAchieve Student Awards program) will be maintained and updated as needed. Departmental Institutional Effectiveness data will be gathered and entered into the TaskStream program and used to improve departmental curricula. The annual assessments and reviews of the data will continue unchanged. The ThinkAchieve Awards ceremony will occur in the spring.



### **Implementation Plan Year Five (2015-16 Academic Year)**

Year five will be the same as year four as far as programming and assessment are concerned. Pre-orientation and orientation modules will continue to be revised, implemented, reviewed, and assessed. Faculty and professional development will continue as needed and through recommendations from faculty. The Learning Communities will continue to be active. The Faculty Mentors will continue their work, and new faculty mentors will be selected and honored at the end of the year. A new batch of development grants will be awarded, and assessment of the prior recipients' programs will occur. More faculty will attend the CAT Train-the-Trainer session, and training will again occur at UTC. The online resources (both for faculty development and within the ThinkAchieve Student Awards program) will be maintained and updated as needed. Departmental Institutional Effectiveness data will be gathered and entered into the TaskStream program and used to improve departmental curricula. The annual assessments and reviews of the data will continue unchanged. The Awards ceremony will continue to take place in the spring.

The biggest difference in year five is that we will be working to ensure the continuation of those programs that have been proven most successful. As the QEP only has a five-year guaranteed life, additional grant funding may be needed to continue or expand the programs beyond their original goals. The appropriate personnel, especially the Experiential Learning Coordinator, will work to secure the funds and the support to maintain the ThinkAchieve Student Awards program. Once the culture of critical thinking is well-established, incorporating new research and innovation into the faculty development programming at WTRC will not require any additional funds, but it will require an ongoing awareness of the trends and developments on the subject of critical thinking pedagogy as well.

## Financial Plan

The University of TN at Chattanooga has committed to funding the QEP programs with a projected budget of \$1,658,848 over the course of the five-year plan. These funding needs will be part of the annual cycle of budgeting completed by the University's financial officers and approved by the UT Board of Trustees. The financial plan is attached below.

The plan calls for the addition of three positions: a Coordinator of Experiential Learning, a Faculty Development Critical Thinking Specialist, and a Coordinator of QEP Assessment. Other major funding includes a budget for faculty and professional development activities, the ThinkAchieve Development Grants program, the ThinkAchieve Faculty Mentor Awards program, and assessment costs (CAT, NSSE, FSSE, PPE break out reports).

	Y1	Y2	Y3	Y4	Y5	Project TOTAL
	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	
<b>YEARLY TOTAL</b>	<b>315,300</b>	<b>327,465</b>	<b>329,088</b>	<b>337,193</b>	<b>349,802</b>	<b>1,658,848</b>
Critical Thinking Specialist (Faculty & Instructional Developer/Training)	55,000	57,750	60,638	63,669	66,853	<b>303,910</b>
CT Specialist Benefits (41%)	22,550	23,678	24,861	26,104	27,410	<b>124,603</b>
Experiential Coordinator	45,000	47,250	49,613	52,093	54,698	<b>248,653</b>
Experiential Coordinator Benefits (41%)	18,450	19,373	20,341	21,358	22,426	<b>101,948</b>
Planning & Institutional Research Personnel	30,000	31,500	33,075	34,729	36,465	<b>165,769</b>
Planning & Institutional Research Personnel Benefits (41%)	12,300	12,915	13,561	14,239	14,951	<b>67,965</b>
Faculty Teaching Awards/Mentors	20,000	20,000	20,000	20,000	20,000	<b>100,000</b>
Think Achieve Grants Program	25,000	25,000	25,000	25,000	25,000	<b>125,000</b>
External Speakers/Seminars for Professional Development Programming	8,000	5,000	5,000	5,000	5,000	<b>28,000</b>
PR/Communication	25,000	20,000	15,000	10,000	10,000	<b>80,000</b>
Student Rewards & Recognition Program (Think Achieve Awards)	2,000	5,000	5,000	8,000	10,000	<b>30,000</b>
Pre-orientation/Orientation Program	10,000	20,000	20,000	20,000	20,000	<b>90,000</b>
PPE Break Out Reports	2,000	2,000	2,000	2,000	2,000	<b>10,000</b>
NSSE/FSSE (Some costs covered by OPEIR)	10,000	10,000	10,000	10,000	10,000	<b>50,000</b>
CAT Test Fees (Includes Faculty Training Costs)	30,000	28,000	25,000	25,000	25,000	<b>133,000</b>

## Summary

*The objective of education is to prepare the young to educate themselves throughout their lives.*

These familiar words from Robert Maynard Hutchins are often quoted but rarely fully realized. How do we actually prepare young people to educate themselves? There is no assessment tool, no measure of success for this goal. Many educators recognize the value of this idea without a comprehensive belief in its applicability. With ThinkAchieve: Creating Connections, we have tried to establish some practical methods and programs that will contribute to our goal. We have recognized the importance of an integrative system of learning and of using the whole student learning environment as a “classroom” for critical thinking. We have seen how critical thinking can transcend any particular disciplinary content while contributing to overall academic success. We believe in the strength gained through experience and have created a program that embraces such experiential learning. These are tangible actions that will yield tangible results. Ultimately, however, we know that our hope for our students is bound up in things that cannot always be accurately assessed, and we will also look for those signs that the culture of thinking has shifted at UTC: increased intellectual discourse, tolerance of multiple perspectives, student innovations in research, and of course, achievement. We shall *Achieve*, and we shall do so through enhancing the foundation of how we *Think*.

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## Appendix A: UTC Quality Enhancement Plan Task Force Members

**Linda Johnston**, Chair, Assistant Professor, School of Education  
**Karen Adsit**, Professor & Director, Walker Teaching Resource Center  
**Dee Dee Anderson**, Associate Vice Chancellor, Student Development  
**Deborah Arfken**, Professor, University Planning Coordinator  
**Frances Bender**, Assistant Provost, Student Retention & Success  
**Stuart Benkert**, Associate Professor, Music  
**Laura Cagle**, UTC Undergraduate Student  
**Andrew Clark**, UTC Undergraduate Student  
**Sara Coffman**, Lecturer, English  
**Julia Cronin**, Student Employment Coordinator, Financial Aid  
**Lorraine Evans**, Assistant Professor, Sociology  
**Richard Gruetzemacher**, Director, Planning, Evaluation & Institutional Research  
**Andrew Horton**, Associate Athletics Director for External Operations, Athletics  
**Chandler Lawson**, UTC Undergraduate Student  
**Robbie Myers**, UTC Undergraduate Student  
**David Rausch**, Visiting Associate Professor and Director – Kingsport Initiative, School of Education  
**Michelle Rigler**, Director, Office for Students with Disabilities  
**Mary Roland**, Director, Center for Advisement and Student Success  
**William Sutton**, Dean, College of Engineering & Computer Science  
**Nathalia Vargas**, UTC Undergraduate Student  
**Paul Watson**, Professor and Department Head, Psychology  
**Kevin White**, UTC Undergraduate Student

## APPENDIX B: Sample Critical Thinking Rubrics

(Rubric used and adapted with permission of the University of Louisville)

	<b>Not Evident - 1</b>	<b>Occasionally -2</b>	<b>Evident - 3</b>	<b>Clearly Evident - 4</b>
<b>Demonstrates recognition of problem or question.</b>	No discernible thesis. Does not identify/state the nature of the problem or the related issue(s). Represents the issues inaccurately or inappropriately.	The thesis states/identifies the main question. Does not explain why or how it is a problem/question. Represents most issues accurately and appropriately.	The thesis states/identifies the main question and more detailed subsidiary aspects of the problem or question. Articulates some understanding of the scope of the problem and the related issue(s).	Thesis articulates clear understanding of the main question and related issue(s). Identifies embedded or implicit issues, addressing their relationships to the thesis.
<b>Uses reasoning skills to develop and analyze arguments and evidence.</b>	Does not develop an argument based on available information or evidence. Does not identify the key assumptions and/or evaluate the given information that underlies the issue.	Applies relevant thinking skills (comparing, contrasting, classifying, abstracting, analyzing, criticizing) in presenting information but without clear reference to context, assumptions, data, and evidence.	Applies relevant thinking skills in presenting information with reference to context, assumptions, data, and evidence. Suggests implications and consequences without development.	Applies relevant thinking skills in presenting information. Identifies and clearly discusses implications and consequences, considering relevant assumptions, contexts, data, and evidence.
<b>Shows awareness of multiple points of view and integrates knowledge gained from different sources.</b>	Does not acknowledge other possible perspectives or consider other options in developing the argument.	Acknowledges other possible perspectives although they are not clearly stated, developed, or evaluated.	States clearly other salient perspectives and positions that are important to the analysis of the issue.	Clearly states and develops responses to other salient perspectives and positions that are important to analysis of the issue.
<b>Integrates multiple sources of theoretical and research knowledge gained.</b>	Does not integrate theoretical and research knowledge derived from multiple sources.	Acknowledges research information derived from other sources but does not evaluate or integrate that information into the argument.	Acknowledges, and examines information derived from multiple sources and integrates that information into the argument.	Clearly synthesizes theoretical and research information within context of the culminating experience.
<b>Includes critical reflection on knowledge gained in the academic program.</b>	No recognition of connections made among knowledge gained in the academic program and culminating experience.	Little recognition of connections made among knowledge gained in the academic program and culminating experience.	Recognition of connections made among knowledge gained in the academic program and culminating experience, but it lacks application specificity.	Specific recognition of applicability of knowledge gained from the academic program and culminating experience
<b>Develops possible solutions based on evaluation of reasons, arguments, and evidence.</b>	Possible solutions are not provided. Fails to reflect, identify, or develop implications, consequences, and conclusions.	Conclusions are provided, but little or no reflection of the assertions or of the key relationships between other elements such as context, assumptions, or data and evidence.	Conclusions are stated and discussed. Implications and consequences of the conclusions are reflected in context, assumptions, and supporting evidence.	Conclusions are based on thorough examination of evidence and a clear explanation of alternatives, and possible consequences. Reflection and evaluation develop and challenge solutions by using relevant information.



## CRITICAL THINKING VALUE RUBRIC

*for more information, please contact value@aacu.org*

### Definition

Critical thinking is a habit of mind characterized by the comprehensive exploration of issues, ideas, artifacts, and events before accepting or formulating an opinion or conclusion.

*Evaluators are encouraged to assign a zero to any work sample or collection of work that does not meet benchmark (all one) level performance.*

	Capstone 4	3	Milestones 2	Benchmark 1
<b>Explanation of issues</b>	Issue/problem to be considered critically is stated clearly and described comprehensively, delivering all relevant information necessary for full understanding.	Issue/problem to be considered critically is stated, described and clarified so that understanding is not seriously impeded by omissions.	Issue/problem to be considered critically is stated but description leaves some terms undefined, ambiguities unexplored, boundaries undetermined, and/or backgrounds unknown.	Issue/problem to be considered critically is stated without clarification or description.
<b>Evidence</b> <i>Selecting and using information to investigate a point of view or conclusion</i>	Information is taken from source(s) with enough interpretation/evaluation, to develop a comprehensive analysis or synthesis. Viewpoints of experts are questioned thoroughly.	Information is taken from source(s) with enough interpretation/evaluation to develop a coherent analysis or synthesis. Viewpoints of experts are subject to questioning.	Information is taken from source(s) with some interpretation/evaluation, but not enough to develop a coherent analysis or synthesis. Viewpoints of experts are taken as mostly fact, with little questioning.	Information is taken from source(s) without any interpretation/evaluation. Viewpoints of experts are taken as fact, without question.
<b>Influence of context and assumptions</b>	Thoroughly (systematically and methodically) analyzes own and others' assumptions and carefully evaluates the relevance of contexts when presenting a position.	Identifies own and others' assumptions and several relevant contexts when presenting a position.	Questions some assumptions. Identifies several relevant contexts when presenting a position. May be more aware of others' assumptions than one's own (or vice versa).	Shows an emerging awareness of present assumptions (sometimes labels assertions as assumptions). Begins to identify some contexts when presenting a position.
<b>Student's position (perspective, thesis/hypothesis)</b>	Specific position (perspective, thesis/hypothesis) is imaginative, taking into account the complexities of an issue. Limits of position (perspective, thesis/hypothesis) are acknowledged. Others' points of view are synthesized within position (perspective, thesis/hypothesis).	Specific position (perspective, thesis/hypothesis) takes into account the complexities of an issue. Others' points of view are acknowledged within position (perspective, thesis/hypothesis).	Specific position (perspective, thesis/hypothesis) acknowledges different sides of an issue.	Specific position (perspective, thesis/hypothesis) is stated, but is simplistic and obvious.
<b>Conclusions and related outcomes (implications and consequences)</b>	Conclusions and related outcomes (consequences and implications) are logical and reflect student's informed evaluation and ability to place evidence and perspectives discussed in priority order	Conclusion is logically tied to a range of information, including opposing viewpoints; related outcomes (consequences and implications) are identified clearly.	Conclusion is logically tied to information (because information is chosen to fit the desired conclusion); some related outcomes (consequences and implications) are identified clearly.	Conclusion is inconsistently tied to some of the information discussed; related outcomes (consequences and implications) are oversimplified.

(Rubric used and adapted with permission of Lander University.)

<b>Comprehensive Student Scoring Rubric</b>		<b>Exceeds Standard</b>	<b>At Standard</b>	<b>Emerging Competence</b>	<b>Unacceptable</b>	<b>Score</b>
<b>Student Outcomes</b>						<b>4</b>
<b>Problem Solving/Inquiry (I)</b>	Student does not engage in problem solving/inquiry activities or engages in problem solving activities without demonstrating the application of knowledge and skills appropriate for the situation.	Student engages in problem solving/inquiry activities through the application of knowledge and skills appropriate for the situation. The student can articulate how he or she was the driving force in developing a solution to a significant work setting problem.	Student engages in problem solving/inquiry activities through the application of knowledge and skills appropriate for the situation. The student can articulate how he or she applied knowledge and skills to address a significant work setting problem.	Student engages in problem solving/inquiry activities. There is evidence of limited application of knowledge and skills appropriate for the situation.	Student does not engage in problem solving/inquiry activities or engages in problem solving activities without demonstrating the application of knowledge and skills appropriate for the situation.	<b>3</b>
<b>Communication (II)</b>	Oral communication contains errors in grammar or syntax. Vocabulary may be incorrect or inappropriate. Written communication contains errors in content, spelling, mechanics, or is not legible.	Oral communication is correct, reflects accurate content, and expressive with well chosen vocabulary. Written communication is correct, reflects accurate content, and is legible.	Oral communication is correct and reflects accurate content. Written communication is correct, reflects accurate content, and is legible.	Oral communication is free of errors in grammar or syntax. Vocabulary is correct, but is limited. Written communication is free from errors in content, spelling, mechanics, and is legible.	Oral communication contains errors in grammar or syntax. Vocabulary may be incorrect or inappropriate. Written communication contains errors in content, spelling, mechanics, or is not legible.	<b>2</b>
<b>Collaboration (III)</b>	Student fails to establish interaction with colleagues or relationships are unprofessional.	Student routinely shares materials, resources, and ideas with colleagues and other professionals. Student may volunteer to organize tasks or take a lead role in problem solving activities.	Student works collaboratively with work site colleagues to solve problems, learn, and grow professionally.	Student maintains professional, cordial relationships with work site colleagues.	Student fails to establish interaction with colleagues or relationships are unprofessional.	<b>1</b>

<b>Professionalism (IV)</b>	The student routinely demonstrates unprofessional appearance or behavior in an unprofessional manner (tardy, unprepared, dishonest, unethical).	The student occasionally demonstrates an unprofessional appearance. The Student behaves in an unprofessional manner.	The student consistently demonstrates professional appearance and behavior.	The student consistently demonstrates professional appearance and behavior characteristic of a model employee.
<b>Career Understandings (V)</b>	The student displays little understanding of career options and requirements related to the work site placement.	The student can articulate career options related to the work site placement.	The student can articulate career options and requirements related to the work site placement.	The student can articulate career options and requirements related to the work site placement. In addition, the student can relate career goals to his or her education and personal strengths.
<b>Reflection (VI)</b>	The student misjudges his or Her performance and success. The student is not open to constructive criticism. Reflections are not evident.	The student recognizes his or her level of effectiveness. Offers vague, general suggestions for professional improvement or is dependent on supervisors for ideas. The student is open to suggestions and demonstrates limited reflection.	The student recognizes his or her level of effectiveness and notes his or her strengths and weaknesses. Student is committed to reflection, self-assessment, and learning as an ongoing process. Constructive criticism is welcomed.	The student is able to critically, analyze his or her strengths and weaknesses and offers suggestions for improvement. Student reflects on his or her role in fulfilling professional responsibilities.
<b>Professional Development (VII)</b>	The student makes no attempt to participate in professional growth opportunities.	The student occasionally participates in required professional growth activities.	The student is involved in professional opportunities and uses knowledge from professional literature and colleagues to improve his or her performance.	The student shares new knowledge and skills, conducts action research, makes presentations, or coordinates professional development events.

## APPENDIX C: Coordinator of Experiential Learning Job Description

### Coordinator for Experiential Learning

UTC's ThinkAchieve is a program designed to increase student critical thinking. The program has three themes, one of which is experiential learning. This position coordinates the experiential learning and co-curricular activities related to the ThinkAchieve program.

The Coordinator for Experiential Learning coordinates the ThinkAchieve experiential activities, including the evaluation of programming and the documentation for student co-curricular transcripts. The Coordinator works closely with other ThinkAchieve Programs and personnel to integrate experiential learning into the curriculum.

The coordinator seeks and supports relationships with community partners, supports faculty engaged in service learning, and works closely with staff from other departments to manage student experiential learning opportunities for the ThinkAchieve program.

Reports to Assistant Provost of Academic Affairs, Center for Advisement and Student Retention.

### Essential Functions:

- Coordinate ThinkAchieve: Beyond the Classroom activities, including the ThinkAchieve Student Awards program.
- Maintain an online database of approved ThinkAchieve Student Awards activities.
- Coordinate and manage the ThinkAchieve Student Awards program assessment, task force(s), etc.
- Seek and support relationships with community partners; assess needs and spearhead program development and new initiatives between community groups, faculty, and students
- Manage implementation of the co-curricular transcript function in the UTC student information system.
- Maintain student records for the co-curricular transcripts.
- Work with other ThinkAchieve program personnel to determine faculty development opportunities, etc.
- Support faculty on the logistical details of implementing service learning, capstone, and other experiential opportunities.

### Qualifications:

- Candidates must hold a Bachelors degree; Masters degree preferred
- A minimum of 3-5 years experience in higher education is preferred
- Experience in and strong interest in working with/mentoring college students is critical
- Proven ability to build and sustain relationships in the community is essential
- Capable of working collegially with a diverse group of students, faculty, staff, and visitors on a daily basis.

## APPENDIX D: Critical Thinking Faculty Development Specialist Job Description

### **Assistant Director, Walker Teaching Resource Center, Faculty & Instructional Developer for Critical Thinking**

The Assistant Director plays an active role in all aspects of the Walker Teaching Resource Center, working to initiate and maintain alliances with UTC faculty to improve student learning. In particular, the Assistant Director will be charged with leading, developing, delivering, and assessing a comprehensive faculty development program to improve student critical thinking related to the campus ThinkAchieve programs.

The Assistant Director position is a 12-month, administrative staff appointment, reporting to the Director of the Walker Teaching Resource Center.

#### **Essential Functions:**

- Work as part of the team to plan, develop, and implement faculty, adjunct, and staff programming.
- Design and facilitate a faculty development program for incorporating critical thinking and high impact teaching strategies into the curriculum.
- Develop and facilitate ThinkAchieve Faculty Learning Communities, Faculty Mentors program, and ThinkAchieve Development Grants Program (work with Exp Coordinator).
- Develop, organize, and lead teaching and learning seminars related to improving critical thinking.
- Consult with faculty on teaching strategies that improve student critical thinking skills.
- Encourage and participate in conversations about teaching and learning.
- Assist faculty with the redesign of courses to promote student learning and critical thinking.
- Manage and develop online resources related to teaching and learning.

#### **Minimum Qualifications**

- Education: Masters degree required; Doctorate preferred
- Experience: 2- 3 years teaching or training experience in higher education
- Ability to develop and administer teaching improvement programs
- Ability to work with a variety of disciplines and teaching styles
- Sensitivity to issues related to the improvement of teaching
- Excellent oral and written communication skills
- Strong interpersonal and organizational skills
- Ability to think creatively and to demonstrate creative problem solving
- Knowledge and understanding of current issues in teaching and learning in higher education
- Knowledge of the literature and scholarship in teaching and learning, including developing critical thinking skills
- Demonstrated collaborative leadership skills.

## APPENDIX E: Coordinator of QEP Assessment Job Description

### **Coordinator of QEP Assessment**

UTC's ThinkAchieve is a program designed to increase student critical thinking. The program has three themes, one of which is experiential learning. This position coordinates the assessment of the three programmatic elements and prepares yearly reports.

The Coordinator of QEP Assessment coordinates the overall institutional assessment for the ThinkAchieve program. Manages the implementation and delivery of the NSSE, PPE, CAT, and FSSE tests, reports institutional scores back to the appropriate offices, and works closely with staff from other departments to evaluate and assess the ThinkAchieve programs.

Reports to Director of Planning, Institutional Evaluation and Research.

### **Essential Functions:**

- Coordinate all assessment for the ThinkAchieve programs.
- Collate all data for institutional reports.
- Coordinate the delivery of the institution-wide tests (NSSE, FSSE, PPE, CAT, etc.)
- Work with other ThinkAchieve program personnel to determine faculty and staff development opportunities, etc.

### **Qualifications:**

- Candidates must hold a Bachelors degree.
- A minimum of 3-5 years experience in higher education is preferred
- Capable of working collegially with a diverse group of students, faculty, staff, and visitors on a daily basis.

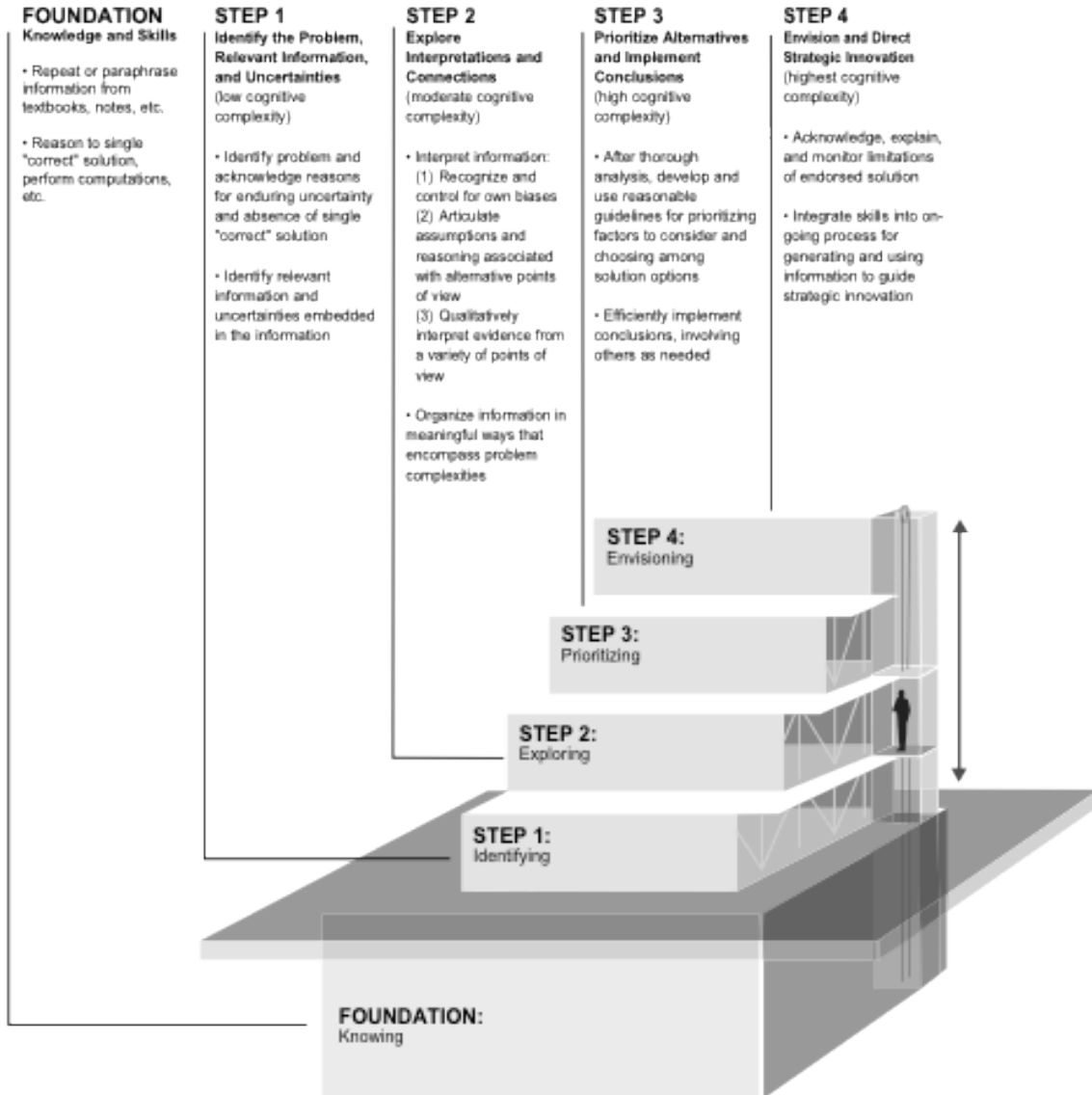


## APPENDIX F: Wolcott Problem-Solving Worksheets



# STEPS FOR BETTER THINKING

## A Developmental Problem Solving Process



© 2006, Susan K. Wolcott. All rights reserved. Materials herein may be reproduced within the context of educational practice or classroom education, provided that reproduced materials are not in any way directly offered for sale or profit. Please cite this source: Wolcott, S. K. (February 9, 2006). Steps for Better Thinking: A Developmental Problem Solving Process [On-line]. Available: <http://www.WolcottLynch.com>. Model evolved from ideas presented in King and Kitchener's (1994) reflective judgment model of cognitive development and Fischer's (Fischer & Bidell, 1998) dynamic skill theory.

## Steps for Better Thinking Performance Patterns

← Less Complex Performance Patterns		More Complex Performance Patterns →		
“Confused Fact-Finder” Performance Pattern 0 Step 1, 2, 3, & 4 skills weak	“Biased Jumper” Performance Pattern 1 Step 2, 3, & 4 skills weak	“Perpetual Analyzer” Performance Pattern 2 Step 3 & 4 skills weak	“Pragmatic Performer” Performance Pattern 3 Step 4 skills weak	“Strategic Re-Visioner” Performance Pattern 4 Strategically Integrates Step 1, 2, & 3 skills
<p><b>Overall Problem Approach:</b> Proceeds as if goal is to find the single, “correct” answer</p>	<p><b>Overall Problem Approach:</b> Proceeds as if goal is to stack up evidence and information to support conclusion</p>	<p><b>Overall Problem Approach:</b> Proceeds as if goal is to establish a detached, balanced view of evidence and information from different points of view</p>	<p><b>Overall Problem Approach:</b> Proceeds as if goal is to come to a well-founded conclusion based on objective comparisons of viable alternatives</p>	<p><b>Overall Problem Approach:</b> Proceeds as if goal is to construct knowledge, to move toward better conclusions or greater confidence in conclusions as the problem is addressed over time</p>
<p><b>Common Weaknesses:</b></p> <ul style="list-style-type: none"> <li>• Fails to realistically perceive uncertainties/ambiguities</li> <li>• Does not seem to “get it”; recasts open-ended problem to one having a single “correct” answer</li> <li>• Insists that professors, textbooks, or other experts should provide “correct” answer</li> <li>• Expresses confusion or futility</li> <li>• Uses illogical/contradictory arguments</li> <li>• Cannot evaluate or appropriately apply evidence</li> <li>• Inappropriately cites textbook, “facts,” or definitions</li> <li>• Concludes based on unexamined authorities’ views or what “feels right”</li> </ul>	<p><b>Major Improvements Over Performance Pattern 0:</b></p> <ul style="list-style-type: none"> <li>• Acknowledges existence of enduring uncertainties and the viability of multiple perspectives</li> <li>• Begins to use evidence logically to support conclusions</li> </ul> <p><b>Common Weaknesses:</b></p> <ul style="list-style-type: none"> <li>• Jumps to conclusions</li> <li>• Stacks up evidence quantitatively to support own view and ignores contrary information</li> <li>• Equates unsupported personal opinion with other forms of evidence</li> <li>• Inept at breaking problem down and understanding multiple perspectives</li> <li>• Insists that all opinions are equally valid, but ignores or discounts other opinions</li> <li>• Views experts as being opinionated or as trying to subject others to their personal beliefs</li> </ul>	<p><b>Major Improvements Over Performance Pattern 1:</b></p> <ul style="list-style-type: none"> <li>• Presents coherent and balanced description of a problem and the larger context in which it is found</li> <li>• Identifies issues, assumptions, and biases associated with multiple perspectives</li> <li>• Attempts to control own biases</li> <li>• Logically and qualitatively evaluates evidence from different viewpoints</li> </ul> <p><b>Common Weaknesses:</b></p> <ul style="list-style-type: none"> <li>• Unable to establish priorities for judging across alternatives</li> <li>• Reluctant to select and defend a single overall solution as most viable, or provides inadequate support for solution</li> <li>• Writes overly long paper in attempt to demonstrate all aspects of analysis (problems with prioritizing)</li> <li>• Jeopardizes class discussions by getting stuck on issues such as definitions</li> </ul>	<p><b>Major Improvements Over Performance Pattern 2:</b></p> <ul style="list-style-type: none"> <li>• After thorough exploration, consciously prioritizes issues and information</li> <li>• Articulates well-founded support for choosing one solution while objectively considering other viable options</li> <li>• Conclusion based on qualitative evaluation of experts’ positions or situational pragmatics</li> <li>• Effectively incorporates others in the decision process and/or implementation</li> </ul> <p><b>Common Weaknesses:</b></p> <ul style="list-style-type: none"> <li>• Conclusion doesn’t give sufficient attention to long-term, strategic issues</li> <li>• Inadequately identifies and addresses solution limitations and “next steps”</li> </ul>	<p><b>Major Improvements Over Performance Pattern 3:</b></p> <ul style="list-style-type: none"> <li>• Prioritizes and addresses limitations effectively</li> <li>• Interprets and re-interprets bodies of information systematically over time as new information becomes available</li> <li>• Exhibits a strategic, long-term vision</li> <li>• Spontaneously considers possible ways to generate new information about the problem</li> </ul> <p><b>Common Weaknesses:</b></p> <ul style="list-style-type: none"> <li>• Not applicable</li> </ul>

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## Steps for Better Thinking Rubric

Steps for Better Thinking ↓ SKILLS ↓	← Less Complex Performance Patterns			More Complex Performance Patterns →	
	"Confused Fact Finder" Performance Pattern 0—How performance might appear when Step 1, 2, 3, and 4 skills are weak	"Biased Jumper" Performance Pattern 1—How performance might appear when Step 1 skills are adequate, but Step 2, 3, and 4 skills are weak	"Perpetual Analyzer" Performance Pattern 2—How performance might appear when Step 1 and 2 skills are adequate, but Step 3 and 4 skills are weak	"Pragmatic Performer" Performance Pattern 3—How performance might appear when Step 1, 2, and 3 skills are adequate, but Step 4 skills are weak	"Strategic Re-Visioner" Performance Pattern 4—How performance might appear when one has strong Step 1, 2, 3, and 4 skills
<b>Step 1: IDENTIFY</b> A—Identify and use relevant information B—Articulate uncertainties	A0—Uses very limited information; primarily "facts," definitions, or expert opinions B0—Either denies uncertainty OR attributes uncertainty to temporary lack of information or to own lack of knowledge	A1—Uses limited information, primarily evidence and information supporting own conclusion B1—Identifies at least one reason for significant and enduring uncertainty*	A2—Uses a range of carefully evaluated, relevant information B2—Articulates complexities related to uncertainties and the relationships among different sources of uncertainty	A3—Uses a range of carefully evaluated, relevant information, including alternative criteria for judging among solutions B3—Exhibits complex awareness of relative importance of different sources of uncertainties	A4—Same as A3 PLUS includes viable strategies for GENERATING new information to address limitations B4—Exhibits complex awareness of ways to minimize uncertainties in coherent, on-going process of inquiry
<b>Step 2: EXPLORE</b> C—Integrate multiple perspectives and clarify assumptions D—Qualitatively interpret information and create a meaningful organization	C0—Portrays perspectives and information dichotomously, e.g., right/wrong, good/bad, smart/stupid D0—Does not acknowledge interpretation of information; uses contradictory or illogical arguments; lacks organization	C1—Acknowledges more than one potential solution, approach, or viewpoint; does not acknowledge own assumptions or biases D1—Interprets information superficially as either supporting or not supporting a point of view; ignores relevant information that disagrees with own position; fails to sufficiently break down the problem	C2—Interprets information from multiple viewpoints; identifies and evaluates assumptions; attempts to control own biases* D2—Objectively analyzes quality of information; organizes information and concepts into viable framework for exploring realistic complexities of the problem*	C3—Evaluates information using general principles that allow comparisons across viewpoints; adequately justifies assumptions D3—Focuses analyses on the most important information based on reasonable assumptions about relative importance; organizes information using criteria that apply across different viewpoints and allow for qualitative comparisons	C4—Same as C3 PLUS argues convincingly using a complex, coherent discussion of own perspective, including strengths and limitations D4—Same as D3 PLUS systematically reinterprets evidence as new information is generated over time OR describes process that could be used to systematically reinterpret evidence
<b>Step 3: PRIORITIZE</b> E—Use guidelines or principles to judge objectively across the various options F—Implement and communicate conclusions for the setting and audience	E0—Fails to reason logically from evidence to conclusions; relies primary on unexamined prior beliefs, clichés, or an expert opinion F0—Creates illogical implementation plan; uses poor or inconsistent communication; does not appear to recognize existence of an audience	E1—Provides little evaluation of alternatives; offers partially reasoned conclusions; uses superficially understood evidence and information in support of beliefs F1—Fails to adequately address alternative viewpoints in implementation plans and communications; provides insufficient information or motivation for audience to adequately understand alternatives and complexity	E2—Uses evidence to reason logically within a given perspective, but unable to establish criteria that apply across alternatives to reach a well-founded conclusion OR unable to reach a conclusion in light of reasonable alternatives and/or uncertainties F2—Establishes overly complicated implementation plans OR delays implementation process in search of additional information; provides audience with too much information (unable to adequately prioritize)	E3—Uses well-founded, overarching guidelines or principles to objectively compare and choose among alternative solutions; provides reasonable and substantive justification for assumptions and choices in light of other options* F3—Focuses on pragmatic issues in implementation plans; provides appropriate information and motivation, prioritized for the setting and audience*	E4—Articulates how a systematic process of critical inquiry was used to build solution; identifies how analysis and criteria can be refined, leading to better solutions or greater confidence over time F4—Implementation plans address current as well as long-term issues; provides appropriate information and motivation, prioritized for the setting and audience, to engage others over time
<b>Step 4: ENVISION</b> G—Acknowledge and monitor solution limitations through next steps H—Overall approach to the problem	G0—Does not acknowledge significant limitations beyond temporary uncertainty; next steps articulated as finding the "right" answer (often by experts) H0—Proceeds as if goal is to find the single, "correct" answer	G1—Acknowledges at least one limitation or reason for significant and enduring uncertainty; if prompted, next steps generally address gathering more information H1—Proceeds as if goal is to stack up evidence and information to support own conclusion	G2—Articulates connections among underlying contributors to limitations; articulates next steps as gathering more information and looking at problem more complexly and/or thoroughly H2—Proceeds as if goal is to establish an unbiased, balanced view of evidence and information from different points of view	G3—Adequately describes relative importance of solution limitations when compared to other viable options; next steps pragmatic with focus on efficiently GATHERING more information to address significant limitations over time H3—Proceeds as if goal is to come to a well-founded conclusion based on objective consideration of priorities across viable alternatives	G4—Identifies limitations as in G3; as next steps, suggests viable processes for strategically GENERATING new information to aid in addressing significant limitations over time* H4—Proceeds as if goal is to strategically construct knowledge, to move toward better conclusions or greater confidence in conclusions as the problem is addressed over time*

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\* Shaded cells most closely related to "stair step" model. Performance descriptions to the left of a shaded cell characterize skill weaknesses. Performance descriptions to the right of a shaded cell characterize skill strengths.

## **Using the Attached Worksheet: “Describing Your Approach to a Real-World Problem”**

### **Recommended Use:**

- This worksheet is designed for situations in which students have not received any particular training in a problem solving process. The worksheet guides students to describe the process they used.
- Have students fill out this worksheet to describe a problem from real-world experiences, such as *internships, service-learning, clinical practice, and so on*.
- Ask students to pick a problem they encountered in their real-world experience and then complete the worksheet for that problem. The instructions on the first page of the worksheet should be modified for the student setting.
- Faculty should review the worksheet to gain an understanding of how students address problems. In most cases, weaknesses in the early items (i.e., items B and C) will lead to weaknesses in the later items on the worksheet.
- Once student weaknesses are identified, educational activities can be designed to help students develop better problem solving skills. The items on the worksheet (B through G) are organized from least complex skills to most complex skills. To increase the likelihood that students will develop desired skills, educational activities should focus first on the least complex skills in which student weaknesses are identified.

### **Alternative Use:**

- This worksheet could also be used in conjunction with student experiences when working in teams with other students. Students could be asked to identify a problem related to their *teamwork*.

### **Permission to Copy and Use**

As noted at the bottom of each page of the worksheet, copyright permission is granted to copy and adapt this worksheet for noncommercial purposes. Please be sure to include the copyright information on all copies.

**Describing Your Approach to a Real-World Problem, Page 1 Name:** \_\_\_\_\_

One of the skills of a professional is self-regulation, which is sometimes referred to as "life-long learning." One of the best ways to begin self-regulation is to reflect on ways that you have addressed problems in the past. This self-evaluation form is designed to help you do this. Once you understand how you typically address problems, you can begin to consider ways to improve your approaches to future problems.

Before filling out this worksheet, choose either a medical problem or a personnel/teamwork problem that you have encountered in your clinical experience.

**A. Describing the Problem and Solution**

Briefly describe the problem, the circumstances, and your solution:

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**Describing Your Approach to a Real-World Problem, Page 2** Name: \_\_\_\_\_

**B. Recognition of Alternative Solutions and Uncertainties**

Briefly describe the possible solutions that you considered:

What uncertainties are there about this problem? Why might there be disagreement about the best solution?

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**Describing Your Approach to a Real-World Problem, Page 3** Name: \_\_\_\_\_

**C. Use of Relevant Information in Addressing the Problem**

List relevant information that you used in addressing the problem:

**D. Interpretations of Information**

Did you think about how different people could see information related to this problem in different ways? Give an example:

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**Describing Your Approach to a Real-World Problem, Page 4** Name: \_\_\_\_\_

**E. Use of Guidelines or Principles to Judge Across the Various Options**

Can you explain how you decided what factors were most important in solving this problem? Give an example.

In coming to your solution, did you carefully consider more than one opinion or solution? Explain.

**F. Communication**

Did you communicate the problem or your solution to anyone? If so, briefly explain:

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**G. Learning from Past Experience**

What did you learn from your experience with this problem?

If you encounter a similar problem in the future, would you address it the same way? Why or why not?

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