

SECTION II

Overview

Section II of this response report is organized into the following segments:

- Introduction
 - Overall intent of MSU QEP
 - QEP development at Morehead State University
 - Institutional intent for future implementation

- Recommendation 2: *CS 3.2.2(3) (Institutional Capability for the Initiation, Implementation, and Completion of the QEP)* The Committee recommends that MSU develop a realistic multi-year budget that represents the various stages of expenditure in terms of implementing the QEP.

- Recommendation 3: *CS 3.2.2(3)(Assessment of the QEP)* The Committee recommends that MSU clearly delineate student learning outcomes and the action plans for achieving them.

- Recommendation 4: *CS 3.2.2(3)(Assessment of the QEP)* The Committee recommends that MSU develop a plan for assessing achievement of student learning outcomes that have been established for the QEP.

Introduction

Overall Intent of the QEP at Morehead State University

To adequately prepare leaders for evolving issues of local and global communities, Morehead State University has decided to equip graduates with skills to effectively address complex problems. Graduates must acquire knowledge to be successful, but they must also develop fundamental competencies to apply knowledge in their personal and professional lives. One such competency, critical thinking, is essential to use information for wise decisions and responsible actions. The importance of critical thinking is not disputed. Prospective employers place the highest value on employees' ability to think critically. Unfortunately, a variety of assessments indicated that the critical thinking of MSU students needs improvement. Consequently, Morehead State selected the QEP goal of enhancing the ability of our students to think critically.

QEP Development at Morehead State University

The process used to develop the QEP topic and implementation plan at Morehead State University was over two years in development. In fall 2008, the QEP committee was established with members representing the broad-based constituency of the University. The first tasks were to learn what was required in the QEP by SACS, to plan the timeline and overall process of development, and to communicate broadly to the MSU community the plan for input and development. The QEP committee accomplished these tasks in the fall 2008. In the spring 2009, the committee collected and analyzed data on MSU student performance in broad areas of

learning at the college level. Committee members also visited many constituent groups to describe the QEP process and collect opinions on student needs in a 21st century education.

During Convocation at the start of the fall 2009 semester, the constituent survey results and data on MSU student performance were shared broadly with the MSU community along the lines of potential QEP themes and “best practices” learning strategies on themes. The community was then invited to provide QEP topic proposals for Morehead State University students. These topic proposals were collected and broadly redistributed for feedback from the MSU community during the 2009 fall semester. Late in 2009, the QEP committee analyzed the topic proposals and feedback to narrow down topics to one – critical thinking.

In January 2010, the committee recruited two teams of faculty to write white papers on the critical thinking topic. While the faculty were writing white papers in the spring 2010, the QEP committee began writing the preliminary sections of the QEP report to submit to SACS. In March 2010, the white papers were distributed to the MSU community and feedback gathered. In May 2010, the QEP committee finalized the QEP topic and communicated to the MSU community. In summer 2010, the committee hosted a QEP consultant, Dr. Barbara Jones and SACS Vice President, Dr. Rudy Jackson. Both Dr. Jones and Dr. Jackson provided valuable input on the QEP topic and report development processes. Based on their recommendations, the QEP scope was fine tuned and MSU faculty members were recruited for a Design Team to write the final report for the QEP.

By late October 2010, the Design Team completed their draft of the QEP report, which was distributed to the MSU community for feedback. In January 2011, the QEP committee finalized the final QEP report, which was then delivered to SACS in February 2011.

Institutional Intent for Future Implementation of Critical Thinking

The QEP at Morehead State University is intended as an experiment to determine the most effective methods to incorporate critical thinking into the overall curriculum for each student. Once student learning of critical thinking is positively established in the QEP, the long-term goal is to integrate critical thinking and effective writing into core courses, general education distribution courses, courses in the major, capstones, undergraduate research, service learning, and extracurricular activities. The goal is ultimately to create a culture of critical thinking with assessment as an essential component of the process. This longer-term goal implies a host of additional activities, forms of training and support, and assessment to be determined through the QEP.

Recommendation 2

CS 3.2.2(3) (Institutional Capability for the Initiation, Implementation, and Completion of the QEP) The Committee recommends that MSU develop a realistic multi-year budget that represents the various stages of expenditure in terms of implementing the QEP.

Budget

The budget includes new resources that will be needed to fund the QEP as well as identifies existing resources within the University's operating budget that will be reallocated in support of QEP activities. The reallocated items are identified on the budget worksheet with light shading. Both new and existing resources are subtotaled at the bottom of the worksheet for each year and in the grand budget totals. By including new and existing resources, the budget reflects the University's total fiscal commitment to the QEP.

For each of the five years, the budget is divided into two primary categories: Personnel and Operating. Within each primary category, allocations are classified into three support areas: Administrative, Professional Development and Assessment. The breakdown provides detail on the financial commitment to these primary support areas each year of the QEP. The following are summary descriptions for each line item identified in the QEP budget. The 2011-2016 QEP budget for Morehead State University follows these descriptions.

Personnel - New:

QEP Director: \$13,400 annually to hire adjunct faculty needed to cover the released instructional time (50% release) of the QEP director each of the five years ($\$700 \times 6$ credit hours $\times 2$ semesters = $\$8,400$ annually). An additional \$5,000 is budgeted annually for a summer stipend for the QEP Director.

Training & Curriculum Coordinator: \$8,400 annually to cover the released instructional time (50% release) of the Training & Curriculum Coordinator for each year ($\$700 \times 6$ credit hour $\times 2$ semesters = $\$8,400$ annually).

Administrative assistant salary: A full-time administrative assistant will be assigned half-time to support the QEP Director. Half of the annual salary and benefits ($\$13,072$) for the full-time position is budgeted in the first year with a 3% annual increase budgeted to accommodate any pay increases approved during the project period.

Faculty Stipend – Assessment: \$1,827 is budgeted in both pilot years and the study year to compensate three faculty members to evaluate student work on a final paper in the FYS 101 classes using a critical thinking rubric. Each faculty would receive a \$500 stipend ($\$500 \times 3 = \$1,500 + 21.74\%$ fringe = $\$1,827$).

FYS CT Instructors: \$6,300 in Pilot 1 to cover three (3) FYS faculty ($\$700 \times 3$ credit hours $\times 3$ faculty = $\$6,300$). The budget includes funds to cover six (6) FYS CT Instructors in Pilot 2 and during the study as identified in the QEP Action Plan ($\$700 \times 3$ credit hours $\times 6$ faculty =

\$12,600) annually. The compensation may include but not be limited to funds for professional development, travel, research, stipends and/or teaching reassigned time.

Personnel – Existing:

Three existing positions previously included in the University’s Operating Budget have been reassigned in part in support of the QEP. The amount budgeted reflects their current salary multiplied by the percentage of their time that is estimated to be focused on the QEP annually. A three percent increase is included annually to accommodate any increases in salary approved during the project period. The time allocations for each position are as follows:

- General Education Coordinator – 5%
- Assessment Coordinator – 10%
- Director, Center for Leadership and Professional Development – 5%

CT Fellows: \$2,000 is budgeted in both pilot years and \$3,000 in the study year to compensate faculty serving as Critical Thinking Fellows at \$500 each. The compensation may include but not be limited to funds for professional development, travel, research, stipends and/or teaching reassigned time.

Operating – New

Travel / CT Conference: \$12,400 is budgeted in both pilot years and the study year to cover the cost of four (4) faculty to attend the “THE” Critical Thinking Conference at UC-Berkley—a total of twelve (12) faculty over three years.

Workshops and Seminars: \$5,000 is budgeted annually to support bringing a variety of workshops, seminars and other professional development opportunities to campus throughout the project period. Estimate two events per academic year for five years. Events might include but not be limited to speakers and workshops from other universities with similar QEP objectives.

Marketing and Materials: \$2,000 is budgeted in each pilot year and during the study year to cover the cost of marketing the QEP and materials in support of activities and events. \$1,000 is budgeted during year 4 and 5 for supplies and materials needed to support the assessment and report development.

Assessments – CAAP: \$3,000 is budgeted for each pilot year and \$4,000 for the study year to cover the cost of administering the CAAP pre- and post-tests.

Operating – Existing

Assessments – NSSE/FSSE: Funding previously existing within the University’s budget to support participation in the NSSE and FSSE assessment activities. These costs are reflected in the QEP budget in years 1 and 4 because of their direct support of the QEP.

2011-2016 QEP Budget
Morehead State University

	Year 1 (2011-2012)				Year 2 (2012-2013)				Year 3 (2013-2014)				Year 4 (2014-2015)				Year 5 (2015-2016)				Grand Total			
	Pilot 1				Pilot 2				STUDY				Assess & Analyze				5th Year Report							
	Administrative Costs	Professional Development	Assessment Costs	Total	Administrative Costs	Professional Development	Assessment Costs	Total	Administrative Costs	Professional Development	Assessment Costs	Total	Administrative Costs	Professional Development	Assessment Costs	Total	Administrative Costs	Professional Development	Assessment Costs	Total	Administrative Costs	Professional Development	Assessment Costs	Total
Personnel - New																								
QEP Director	13,400			13,400	13,400			13,400	13,400			13,400	13,400			13,400	13,400			13,400	67,000	-	-	67,000
Training & Curr. Coord	8,400			8,400	8,400			8,400	8,400			8,400	8,400			8,400	8,400			8,400	42,000	-	-	42,000
Administrative Assistant	13,072			13,072	13,464			13,464	13,868			13,868	14,284			14,284	14,713			14,713	69,401	-	-	69,401
Faculty Stipend - Assess.			1,827	1,827			1,827	1,827			1,827	1,827				-				-			5,481	5,481
FYS CT Instructors	6,300			6,300	12,600			12,600	12,600			12,600				-				-	31,500	-	-	31,500
Personnel - Existing																								
General Education Coord	7,625			7,625	7,853			7,853	8,089			8,089	8,332			8,332	8,581			8,581	40,479	-	-	40,479
Assessment Coord			5,675	5,675			5,845	5,845			6,021	6,021			6,201	6,201			6,387	6,387	-	-	30,130	30,130
Dir., Ctr Lead & Prof Dev		4,952				5,101					5,254			5,451					5,574				26,332	-
CT Fellows		2,000		2,000		2,000		2,000			3,000					3,000				-			7,000	7,000
Total Personnel	48,797	6,952	7,502	58,299	55,717	7,101	7,672	65,390	56,357	8,254	7,848	67,205	44,416	5,451	6,201	50,617	45,094	5,574	6,387	51,482	250,380	33,332	35,611	292,991
Operating - New																								
Travel / CT Conference		12,400		12,400		12,400		12,400			12,400												37,200	37,200
Workshops & Seminars		5,000		5,000		5,000		5,000			5,000			5,000		5,000		5,000		5,000			25,000	25,000
Marketing & Materials	2,000			2,000	2,000			2,000	2,000			2,000	1,000			1,000	1,000			1,000	8,000	-	-	8,000
Assessments - CAAP			3,000	3,000			3,000	3,000			4,000	4,000				-				-			10,000	10,000
Operating - Existing																								
Assessments - NSSE /FSSE			4,000	4,000				-				-			4,000	4,000				-			8,000	8,000
Total Operating	2,000	17,400	7,000	26,400	2,000	17,400	3,000	22,400	2,000	17,400	4,000	23,400	1,000	5,000	4,000	10,000	1,000	5,000	-	6,000	8,000	62,200	18,000	88,200
Subtotal QEP (new)	43,172	17,400	4,827	65,399	49,864	17,400	4,827	72,091	50,268	17,400	5,827	73,495	37,084	5,000	-	42,084	37,513	5,000	-	42,513	217,901	62,200	15,481	295,582
Subtotal QEP (existing)	7,625	6,952	9,675	19,300	7,853	7,101	5,845	15,699	8,089	8,254	6,021	17,109	8,332	5,451	10,201	18,533	8,581	5,574	6,387	14,969	40,479	33,332	38,130	85,609
TOTAL QEP Budget	50,797	24,352	14,502	84,699	57,717	24,501	10,672	87,790	58,357	25,654	11,848	90,605	45,416	10,451	10,201	60,617	46,094	10,574	6,387	57,482	258,380	95,532	53,611	381,191
Note: Shaded costs represent existing funds within the University's operating budget that will be allocated in support of the QEP activities, assessments and administration.																								

SECTION II

Recommendation 3

CS 3.2.2(3)(Assessment of the QEP) The Committee recommends that MSU clearly delineate student learning outcomes and the action plans for achieving them.

Recommendation 4

CS 3.2.2(3)(Assessment of the QEP) The Committee recommends that MSU develop a plan for assessing achievement of student learning outcomes that have been established for the QEP.

Based on the recommendations above, the primary components of this response are to:

- Identify/delineate the critical thinking **student learning outcomes** (SLOs) to be implemented in the FYS 101 course.
- Identify/describe the **action plan** including performance criteria and example in-class activities for achieving the QEP critical thinking SLOs.
- Identify/describe an **assessment plan** to evaluate course activities and the overall class in terms of achieving the critical thinking SLOs.

Student Learning Outcomes

Based on the recommendation (#3) from the SACS Reaffirmation Committee, the QEP student learning outcomes (SLOs) for Morehead State University have been more clearly delineated in the form of student learning outcomes and performance criteria for each outcome.

SLO 1 – Student Learning Outcome 1

Students improve their ability to acquire information and assess it for validity.

Performance criteria for SLO 1:

1. Student accurately identifies definitions relevant to the critical thinking process.
2. Student correctly identifies credible sources of information.
3. Student correctly distinguishes between evidence, assumptions (warrants), and biases expressed or implied in materials provided.
4. Student accurately characterizes the evidence in terms of its validity.

SLO 2 – Student Learning Outcome 2

Students improve their ability to critically explore and analyze information.

Performance criteria for SLO 2:

1. Student locates and characterizes a problem raised by supplied materials.
2. Student locates evidence related to the problem.
3. Student asks effective questions about the problem to discover its complexity and potential solutions.

4. Student sufficiently evaluates assumptions (warrants) inherent in the argument[s] raised (or implied) by the problem in terms of their validity and their effects on others examining the problem.
5. Student effectively evaluates the biases of the sources used to examine the problem in terms of their validity and their effects on others examining the problem.

SLO 3 – Student Learning Outcome 3

Students improve their ability to make decisions and act based upon evidentiary information.

Performance criteria:

1. Student effectively examines evidence for a solution.
2. Student effectively proposes a solution(s) to the problem.
3. Student effectively evaluates the assumptions (warrants) inherent in the argument for the solution to the problem.
4. Student effectively evaluates the biases of alternative views to the sources that advocate for the solution the student supports.
5. Student acknowledges and effectively evaluates the claims of those who support and those who disagree with her/his solution to the problem.
6. Student reflects on possible impacts of the solution.

A matrix of the revised QEP SLOs as compared to the MSU general education SLOs for the FYS 101 class is provided in *Appendix A-1 and A-2* (p. II - 12-13).

Action Plan

Based on the recommendation (#3) from the SACS Reaffirmation Committee, action plans for achieving the student learning outcomes are provided. The QEP will assess the effectiveness of the critical thinking SLOs in the general education First Year Seminar (FYS) class. This will be accomplished through two pilots and a study. The first pilot (PILOT 1) will be conducted to design and develop implementation strategies specific to each SLO. The second pilot (PILOT 2) will assess the effectiveness of the teaching/learning strategies in aiding students to accomplish the SLOs. A limited experimental-control group comparison will be used to determine this effectiveness. The STUDY will be an expansion of PILOT 2 to encompass a full implementation utilizing courses of an entire semester.

PILOT 1. Three faculty members will be trained to implement the critical thinking SLOs in their FYS 101 classes in PILOT 1 during the 2011 fall semester. The three PILOT 1 faculty have volunteered because they: (a) teach a FYS 101 class; (2) are members of the team that developed this response report; and, (3) are members of the MSU General Education Council and /or members of the Design Team that wrote the MSU QEP Report. The primary intent of PILOT 1 is to design and develop the CT teaching/learning strategies, assignments, and assessments. Training seminars, expert guest-speaker workshops, webinars, and retreats will assist faculty with the development of specific classroom activities, assignments, assessments and rubrics for critical thinking. (*Appendix B*, p. II – 14-15 provides an example training seminar description.) Prior to the fall 2011 semester and after the CT training, the three FYS

faculty will design in-class activities and assignments specific to the CT SLOs. (*Appendix C*, p. II - 16-18 provides a description of example in-class activities.) During the semester, the faculty will meet periodically to discuss and refine teaching strategies. At the completion of the 2011 fall semester, feedback/data from several assessments of the achievement of CT SLOs in PILOT 1 will be used to refine CT teaching/learning strategies, assignments, and assessments. No non-CT control FYS classes will be implemented in PILOT 1.

PILOT 2. PILOT 2 will be conducted in the 2012 fall semester and will involve both CT and non-CT classes in the experiment. Faculty will be recruited who teach a FYS 101 class but who were not involved in the SACS response report. Faculty implementing critical thinking in their FYS classes will be trained and provided CT teaching/learning strategies, assignments, and assessments refined from PILOT 1. The same number of FYS faculty will be informed they are in an experimental control group but will not be provided training in implementing critical thinking in their classes. Assessment data in PILOT 2 will be collected and assessed to compare the CT and non-CT control classes in order to determine achievement of CT SLOs. Feedback from faculty and students in PILOT 2 will be used to further refine CT teaching/learning strategies, assignments, and assessments for the STUDY.

STUDY. Four to six faculty teaching the FYS class will be recruited and trained to implement critical thinking in their classes. A like number of FYS faculty will be informed they are in an experimental control group but will not be provided CT training. Assessment data in the STUDY will be collected and assessed to compare the CT and non-CT control classes in order to determine achievement of CT SLOs. These data will be aggregated and analyzed to determine the effectiveness of the QEP in terms of the achievement of the CT SLOs.

Table 1 below provides a summary of the action plan with specific application dates.

Table 1. Action Plan

Year	Months	Action	Outcome
2011	July	Three (3) FYS faculty (and QEP Response Report members) in PILOT 1 attend Critical Thinking conference at UC-Berkley	Faculty are trained on current CT teaching/learning strategies
2011	Aug - Dec	Conduct PILOT 1 in three (3) FYS 101 classes	Implement, evaluate and refine CT teaching/learning strategies, assignments, assessments (ex: pre/post test, rubrics)
2012	Jan - Feb	Separate faculty team trained. Team independently reviews and evaluates class assignments using rubrics for achievement of SLOs	3-4 faculty trained in use of rubric to evaluate class materials. Team provides feedback on effectiveness of addressing the SLOs
2012	Mar - May	PILOT 1 faculty and review team examine and refine CT teaching/learning strategies, assignments, assessments	From results of assessment, refine teaching strategies and class materials for PILOT 2
2012	Mar - Jul	Recruit and train three-four (3-4) FYS faculty for PILOT 2. Recruit 3-4 FYS faculty for control group (no CT training).	CT and control class faculty teams formed and trained

Table 1. Action Plan

Year	Months	Action	Outcome
2012	Jul	Selected 3-4 FYS faculty attend CT conference	Faculty are trained on current CT teaching/learning strategies
2012	Aug - Dec	Conduct PILOT 2	Collect and assess comparison data from CT and control classes to determine achievement of CT SLOs
			Evaluate and assess the effectiveness of the refined CT teaching/learning strategies, materials, assessments
2013	Jan - Feb	Separate faculty team independently reviews and evaluates CT and control classes	Team provides feedback on effectiveness of addressing the SLOs in the CT and control classes
2013	Mar - May	PILOT 2 faculty and review team examine and refine CT teaching/learning strategies, assignments, assessments	From results of assessment, refine teaching strategies and class materials for STUDY
2013	Mar - Jul	Recruit and train four-six (4-6) FYS faculty for STUDY. Recruit 4-6 FYS faculty for control group (no CT training).	CT and control class faculty teams formed and trained
2013	Jul	Selected 4-6 FYS faculty attend CT conference	Faculty are trained on current CT teaching/learning strategies
2013	Aug - Dec	Conduct STUDY	Collect and assess comparison data from CT and control classes to determine achievement of CT SLOs
2014	Jan - Feb	Separate faculty team independently reviews and evaluates CT and control classes	Team provides feedback on effectiveness of addressing the SLOs in the CT and control classes
2014	Mar - Dec	Aggregate and analyze results	Determine the effectiveness of the QEP at achieving the CT SLOs
2015	Jan - Mar		Determine most effective methods to incorporate critical thinking into the overall curriculum
2015	Mar - Dec	Write SACS 5th year report	Draft report completed and reviewed
			Begin initial steps to incorporate critical thinking into overall curriculum
2016	Jan - May	Finalize, submit, defend report	Final report completed and approved Continue incorporating critical thinking into the curriculum - general education, courses in the major, capstones, undergraduate research, service learning, extracurricular activities

Assessment Plan

Based on the recommendation (#4) from the SACS Reaffirmation Committee, a plan for assessing achievement of the QEP student learning outcomes is provided. Table 2 on the next page provides a summary of the assessment plan.

- Pre/posttest – a standardized test (CAAP – CT module) will be administered in the FYS 101 classes implementing critical thinking SLOs and the control classes for the two pilots and the study. This administration will occur at the beginning and end of the class.
- The course-embedded assignments developed and implemented by FYS faculty to address the individual critical thinking SLOs (1, 2, and 3) will be assessed using a rubric for each SLO. These rubrics will be based upon the performance criteria for each SLO. This evaluation will be completed by the FYS faculty teaching the classes.
- Once the FYS classes are completed, an independent faculty team will review and evaluate student work on final assignments using the associated rubrics. The intent of this assessment is to validate the appraisal of the assignment by the FYS faculty. If a lack of reliability is evident, an open discussion will be convened with FYS and independent faculty to clarify expectations of accomplishment and understanding of the rubrics. This assessment process occurs three (3) times, after Pilot 1, after Pilot 2 and after the Study.
- After Pilot 1 and again after Pilot 2, the independent faculty team will review the effectiveness of the critical thinking teaching/learning strategies, class materials, and assessment instruments and methods.
- The faculty implementing CT in the FYS classes and the independent faculty review team will examine and refine CT teaching/learning strategies, assignments, assessments after Pilot 1 and after Pilot 2.
- Student perceptions will be investigated through the use of two surveys. The first survey will be administered at the end of each pilot and the study to determine student perception of their preparedness in executing components of each of the SLOs. A locally-developed survey will be administered with survey items tailored for each of the performance indicators. The second survey, the NSSE, will be administered during the 2011 fall semester to the students in PILOT 1 and again in 2015 spring semester when the freshman from PILOT 1 are seniors.
- The Assessment Coordinator will use data from the independent faculty team to investigate the reliability and validity of all in-house instruments. Reliability will be based on the Spearman-Brown coefficient and internal consistency (validity) will be based on Cronbach's alpha.

Table 2: Assessment Plan Summary

QEP SLOs Assessed	Type of Measure	Measure (See <i>Appendix D</i> p. II - 19-22)	Person Responsible	Administration
All SLOs	Direct Pre-posttest	CAAP-CT module		Beginning & end of class
1. Students improve their ability to acquire information and assess it for validity.	Direct - Formative	CT Assessment Rubric 1	• FYS Faculty	• 2 -3 times /class
			• Independent faculty	• End of class
2. Students improve their ability to critically explore and analyze information.	Direct - Formative	CT Assessment Rubric 2	• FYS Faculty	• 2 -3 times /class
			• Independent faculty	• End of class
3. Students improve their ability to make decisions and act based upon evidentiary information.	Direct - Formative	CT Writing Rubric	• FYS Faculty	• 2 -3 times /class
			• Independent faculty	• End of class
All SLOs	Indirect – Local Survey	Student Preparedness Survey	QEP Director	End of Pilot 1 & 2
All SLOs	Indirect – NSSE	CT skills	QEP Director	End of Pilot 1 (fall 2011) and 2015 spring
Instrument Quality for all SLOs	Statistic	• Spearman-Brown • Cronbach’s Alpha	Assessment Coordinator	End of Pilot 1 & 2

Appendix A-1 (Matrix)

**Matrix of revised QEP SLOs as compared to
MSU general education SLOs for FYS 101 class**

QEP SLOs	Performance Criteria	General Education SLOs for FYS*	General Education SLO 2 Intellectual Skills*
1. Acquire information and assess it for validity	1. Accurately identify definitions relevant to the critical thinking process.		
	2. Correctly identifies credible sources of information.		2a
	3. Correctly distinguishes between evidence, assumptions (warrants), and biases expressed or implied in materials provided.	1a, 1b	2c
	4. Accurately characterizes the evidence in terms of its validity.	1a, 1c	2a
2. Critically explore and analyze information	1. Locates and characterizes a problem raised by supplied materials.	1b	2a, 2b
	2. Locates evidence related to the problem.	1b	2a, 2e
	3. Asks effective questions about the problem to discover its complexity and potential solutions.	2e, 2f	2b, 2e, 2f
	4. Sufficiently evaluates assumptions (warrants) inherent in the argument[s] raised (or implied) by the problem in terms of their validity and their effects on others examining the problem.	2d, 2e, 2f	2a, 2b, 2d, 2e, 2f
	5. Effectively evaluates the biases of the sources used to examine the problem in terms of their validity and their effects on others examining the problem.	1a, 2d	2a, 2d
3. Make decisions and act based upon evidentiary information	1. Effectively examines evidence for a solution.	1b, 2e, 2f	2a, 2b, 2e, 2f
	2. Effectively proposes a solution(s) to the problem.	1a, 1c, 2e	2e
	3. Effectively evaluates the assumptions (warrants) inherent in the argument for the solution to the problem.	2e	2e
	4. Effectively evaluates the biases of alternative views to the sources that advocate for the solution the student supports.	2d	2d
	5. Acknowledges and effectively evaluates the claims of those who support and those who disagree with her/his solution to the problem.	1a, 1b	2a
	6. Reflects on possible impacts of the solution.	2e, 2f	2e, 2f

* Refer to MSU General Education Student Learning Outcomes on following page

Appendix A-2 (MSU General Education SLOs)

1. Communication Skills
Students will demonstrate ability to:
 - 1a. Listen and speak effectively in conversational, small group, public and intercultural contexts
 - 1b. Read college-level critical, creative and technical texts for comprehension
 - 1c. Write effectively for a variety of target audiences using conventions associated with standard English
 - 1d. Convey quantitative and qualitative relationships using symbols, equations, graphs, and tables
2. Intellectual Skills
Students will demonstrate ability to:
 - 2a. Employ current technologies to locate, analyze, evaluate and use information in multiple contexts and for a variety of purposes
 - 2b. Recognize and effectively utilize both deductive and inductive reasoning
 - 2c. Thoughtfully analyze and evaluate diverse points of view
 - 2d. Perceive and articulate ethical consequences of decisions and actions
 - 2e. Apply knowledge and skills to new settings and complex problems
 - 2f. Explore the connections among practical, esoteric, critical and creative thinking
3. Quantitative Skills
Students will demonstrate ability to:
 - 3a. Analyze situations and/or problems using arithmetic, geometric, algebraic and statistical methods
 - 3b. Use deductive reasoning in a formal, symbolic, axiomatic system
 - 3c. Verify answers to mathematical and scientific problems in order to determine reasonableness, identify alternative methods of solution, and select the most reliable results
4. Knowledge of Human Cultures
Students will demonstrate ability to:
 - 4a. Examine the history of the United States and explain the basic principles and operation of the United States government with a view to being a responsible citizen
 - 4b. Investigate the worldview and/or history of cultures outside the United States
 - 4c. Analyze cultural, social, economic, geographic and historical dynamics that influence individuals and groups
 - 4d. Comprehend the cycle of human growth necessary to provide sustained health and individual well-being
5. Knowledge of the Natural World
Students will demonstrate ability to:
 - 5a. Comprehend and apply basic scientific, quantitative, and technological methods and knowledge of natural systems to the solution of scientific problems
 - 5b. Employ scientific methods and theories to analyze and address open and debated questions in the sciences
 - 5c. Analyze explanations to classify them as scientific or nonscientific
6. Knowledge of Aesthetics
Students will demonstrate ability to:
 - 6a. Analyze the significance of diverse creative productions and explain how ideas are communicated effectively through the expressive arts (literature, theatre, dance, music, and visual arts)
 - 6b. Describe and analyze the aesthetic value of creative productions in cultural and historical context

Appendix B

Faculty Training Module

SLO 2: Students improve their ability to critically explore and analyze information

Workshop title:	Problem sets for critical thinking, design to assessment
Purpose:	Workshop participants: participants will create and assess a single activity that students can complete which will demonstrate the students' "ability to critically explore and analyze information."
Time:	90 minutes
Enrollment:	12 participants
Objectives:	The objectives of the training workshop are to: <ol style="list-style-type: none">1) Develop strategies for guiding students to learn to find problems that can serve as frames for critical thinking,2) Develop assignments that require students to demonstrate their abilities to discover and define problems (using critical-thinking techniques), and3) Design scoring guides as ways to measure the students' level of learning to discover and define problems.
Preparation:	Prior to the workshop, participants will: <ol style="list-style-type: none">1) Read SLO 2 and its performance criteria.2) Read Carole Wade's "Using writing to develop and assess critical thinking."3) Bring materials they intend to use for guiding students' learning related to SLO 2.
Summary:	Participants will work in small groups through a set of short activities. By the end of the session participants will produce a time-delineated set of assessable activities and a scoring guide for the assessment based on the "performance criteria" for SLO 2.
Plan:	The plan or approach in the training workshop is as follows: <ol style="list-style-type: none">1) Workshop leader reviews the Wade article, paying particular attention to the "Define the Problem" section (pp. 25-26). [10 minutes]2) Workshop leader reviews the items under SLO 2, paying particular attention to the performance criteria related to locating and characterizing a problem [5 minutes]3) Workshop leader initiates a discussion on the comment Wade makes regarding students' misunderstanding the task (p. 26). [5 minutes]4) Workshop leader directs discussion on ways to develop problem frames for non-empirically-based subjects (using the Wade examples). An example of such frames could be problems related to ethics or aesthetics. [5 minutes]5) Workshop leader directs participants to work together in groups of three-four members and assigns the groups to work individually for five minutes to develop a short list of activities that each teacher could carry out in a single FYS class period which would fit the Wade model. Ten minutes are then devoted to group discussion in order to elicit one activity from each member that can be reported out to the entire workshop. Five more minutes are devoted to reporting from the groups. [20 minutes]6) Workshop leader directs a discussion on ways in which the Wade model can be adapted to the FYS classes. Individual participants are encouraged to voice opinions about the opportunities and challenges of the task of designing the assignments and to discuss predictions on student performance potentials. [10 minutes]

- 7) Workshop leader directs participants' attention to assessment and designing assessment instruments based on predefined performance criteria. The leader invites participants to ask questions about the relationship between SLO 2 and its performance criteria. [5 minutes]
- 8) Workshop leader directs participants to work together in groups of three-four members and assigns the groups to work individually for five minutes to develop a scoring guide (rubric) that aligns with the stated performance criteria of Objective 2 and that could be used to assess the performance of students (in a single FYS class) on their response to the assignment developed in step 5 (above). Ten minutes are then devoted to group discussion focused on the level of alignment exhibited by different members' scoring guides. Each group is to prepare a two-minute report which focuses on the opportunities and challenges that the model and the alignment process (10 minutes total for all reports). [25 minutes]
- 9) Workshop leader directs a discussion on conclusions drawn from the exercises in the workshop and invites participants to discuss the perceived opportunities and challenges they see in the process of developing critical-thinking activities and assessments. [5 minutes]

Appendix C

Sample In-Class Activities

SLO 1: Students improve their ability to acquire information and assess it for validity.

Generating definitions of terms using sources (adapted from Wade, 1995)

Activities related to SLO 1 in the QEP focus on sources and validity, “[s]tudents improve their ability to acquire information and assess it for validity.” The concepts used for the definitional exercise can readily draw from the “What is a good research question for an empirical study?” or “How the humanities and arts define problems” exercises. Terms that arose from the discussion can be interrogated through more in-depth prompts with the activity first modeled by the instructor and followed up by the students. Instructors may wish to examine the student writing-to-learn responses from the “What is a good research question for an empirical study?” or “How the humanities and arts define problems” to develop specific prompts for the students’ in-class writing-to-learn exercises for this assessment. The single example included below would be an excellent opportunity to work directly with the MSU library and arrange for a library educator to conduct a mini-lesson in finding and vetting scholarship.

- 1) The instructor “asks students to generate several possible definitions of a term...and to speculate on how these definitions may lead to different conclusions” (Wade, 1995, p. 26) [practice for performance criteria 1 of SLO 1]. The instructor could begin by discussing how the terms “valid” and “credible” work within the topic of the FYS section. For example, in a section focused on humor and health, the instructor might model the way that the term “humor” is defined broadly and how it has been defined in medicine, including good versus bad humor (or emotional states), funny versus sick humor, and the concepts of “humors,” which played a role for centuries in medical diagnoses. S/he may provide definitions from various sources and model the process used both to discover the sources and to determine their validity and to determine whether health professionals would consider the sources credible. S/he would discuss the formal structure of the sample definitions of “humor.” S/he could include a discussion of the concept of counter evidence and the role it plays in determining biases and assumptions. S/he would direct the students to write a definition of a term from a provided list for 5-to-10 minutes. S/he should tell the students that an adequate response “correctly identifies credible sources of information,” “correctly distinguishes between evidence, assumptions (warrants), and biases expressed or implied in materials provided,” and “accurately characterizes the evidence in terms of its validity.”

SLO 2: Students improve their ability to critically explore and analyze information

These exercises are designed to guide students to develop discriminative and evaluative skills that will aid them in reaching QEP SLO 2: “[s]tudents improve their ability to critically explore and analyze information.” For the purposes of course-level evaluation, these exercises are most useful as formative assessments. They are best imagined as writing-to-learn activities that the instructor evaluates quickly to develop a sense of how well the students understand the concepts. These activities may be used as pre/post-test items in that instructors may ask for five-to-ten minute responses from students before instruction and again as a follow-up exercise after the students have been instructed. As part of QEP program assessment, they will be treated as summative in that they will be examined to determine how well students meet SLO 2 during the FYS semester.

What is a good research question for an empirical study (adapted from Wade, 1995)?

For all of these examples the instructor introduces students to the exercise by discussing with them the difference between examining a question in order to critique the question and examining it in order to answer it [critically analyzing information].

- 1) The instructor presents the following question: "Is humor good for your health?" S/he may then tell students that s/he is not at this time looking for an answer to the question but that s/he wishes the students to examine the question from the perspective of whether it is amenable to empirical research. The instructor should model the way such a response may be framed [exploring and analyzing information]. For example, the instructor would need to refresh the students' memories of the definition of "empirical research." S/he would review the definition of "evidence" and discuss what constitutes valid evidence. S/he would discuss the way that questions often imply specific biases and warrants and discuss how we evaluate a question to determine the assumptions that inhere in it. This discussion may readily move into discussions and mini-lessons on the ways that others respond to our claims and how biases affect the way we present our claims, how we approach a problem, and the ways that others respond to our views. As a review of earlier work on definition, s/he might ask them to think about how they define common terms such as "humor" and "health." S/he should discuss ways in which data could be used to investigate the topic and ways that the data could be used to make a claim based on it as evidence [critical analysis]. The modeling should take 5-10 minutes. S/he should then introduce a set of additional topics related to her/his FYS section and instruct the students to write about one of those topics for 5-10 minutes to explain whether the topic is amenable to empirical research [critically exploring].
- 2) The instructor presents the following question: "Is mountain top removal good for Appalachia?" S/he may then tell students that s/he is not at this time looking for an answer to the question but that s/he wishes the students to examine the question from the perspective of whether it is amenable to empirical research. The instructor should model the way such a response may be framed [exploring and analyzing information]. For example, the instructor would need to refresh the students' memories of the definition of "empirical research" and the term "mountain top removal." S/he would review the definition of "evidence" and discuss what constitutes valid evidence. S/he would discuss the way that questions often imply specific biases and warrants and discuss how we evaluate a question to determine the assumptions that inhere in it. This discussion may readily move into discussions and mini-lessons on the ways that others respond to our claims and how biases affect the way we present our claims, how we approach a problem, and the ways that others respond to our views. As a review of earlier work on definition, s/he might ask them to think about how they define common terms such as "good," "wealth," or "mining." S/he should discuss ways in which data could be used to investigate the topic and ways that the data could be used to make a claim based on it as evidence [critical analysis]. The modeling should take 5-10 minutes. S/he should then introduce a set of additional topics related to her/his FYS section and instruct the students to write about one of those topics for 5-10 minutes to explain whether the topic is amenable to empirical research [critically exploring].
- 3) The instructor presents the following question: "Does your U.S. representative know enough about some of the topics of his/her legislation?" S/he may then tell students that s/he is not at this time looking for an answer to the question but that s/he wishes the students to examine the question from the perspective of whether it is amenable to empirical research. The instructor should model the way such a response may be framed [exploring and analyzing information]. For example, the instructor would need to refresh the students' memories of the definition of "empirical research" and the term "legislation." S/he would review the definition of "evidence" and discuss what constitutes valid evidence. S/he would discuss the way that questions often imply specific biases and warrants and discuss how we evaluate a question to determine the assumptions that inhere in it. This discussion

may readily move into discussions and mini-lessons on the ways that others respond to our claims and how biases affect the way we present our claims, how we approach a problem, and the ways that others respond to our views. As a review of earlier work on definition, s/he might ask them to think about how they define common terms such as “representation,” “knowledge,” or “responsibility.” S/he should discuss ways in which data could be used to investigate the topic and ways that the data could be used to make a claim based on it as evidence [critical analysis]. The modeling should take 5-10 minutes. S/he should then introduce a set of additional topics related to her/his FYS section and instruct the students to write about one of those topics for 5-10 minutes to explain whether the topic is amenable to empirical research [critically exploring].

How the humanities and arts define problems (loosely based on Wade, 1995)

- 1) While the humanities do use empirical research, neither it nor the scientific method are the predominant frameworks (or lenses) through which humanists or artists apply critical thought. An exercise to apply the mode problem/solution to a topic can draw directly from humanistic models in philosophy, rhetoric and criticism. For an FYS course which focuses on the relationship between fact and fiction in science fiction, the instructor might begin with the quotation by the science-fiction writer Philip K. Dick: “Reality is that which, when you stop believing in it, doesn’t go away.” The instructor could ask the rhetoric question, “What problem might this statement be addressing?” [exploring and analyzing information]. S/he could discuss the steps one might take to discover an answer and to craft an acceptable response to the question. The steps could include scholarship, linguistic analysis, testing hypotheses, and relating the response to other statements (or writings) from the person who was responsible for the quotation. S/he would review the definition of “evidence” and discuss what constitutes valid evidence. S/he would discuss the way that questions often imply specific biases and warrants and discuss how we evaluate a question to determine the assumptions that inhere in it [critical analysis]. This discussion may readily move into discussions and mini-lessons on the ways that others respond to our claims and how biases affect the way we present our claims, how we approach a problem, and the ways that others respond to our views. Then the instructor would present a series of other statements and ask the students to “problematize” on them (i.e. discover ways in which problems are embedded in the statements) [critically exploring].

Appendix D - SLO 1 Rubric

FYS 101: First Year Seminar Critical Thinking Assessment I Acquire Valid Information

Name: _____ Date: _____

SLO 1: Students improve their ability to acquire information and assess it for validity.	Fails to Meet Criterion	Meets Criterion	Exceeds Criterion	Total Score
Performance Criteria				
I. Accurately identifies definitions relevant to the critical thinking process	1	2	3	
A. critical thinking (using the Wade and Tavriss definition) ¹		<input type="checkbox"/>		
B. evidence		<input type="checkbox"/>		
C. validity		<input type="checkbox"/>		
D. assumption		<input type="checkbox"/>		
E. warrants		<input type="checkbox"/>		
F. bias		<input type="checkbox"/>		
II. Correctly identifies credible sources of information	1	2	3	
III. Distinguishes evidence, assumptions (warrants), and biases in material provided				
A. Labels evidentiary passages of a source	1	2	3	
B. Identifies claims embedded in or implied by a provided source	1	2	3	
C. identifies assumptions (warrants) in a provided source	1	2	3	
D. identifies biases expressed or implied by the provided source	1	2	3	
IV. Accurately characterizes evidence in terms of its validity	1	2	3	
Total Score (21 possible)				

¹ “the ability and willingness to assess claims and make objective judgments on the basis of well-supported reasons”

Appendix D - SLO 2 Rubric

**FYS 101: First Year Seminar
Critical Thinking Assessment II
Explore and Analyze Information**

Name: _____ Date: _____

SLO 2: Students improve their ability to critically explore and analyze information	Fails to Meet Criterion	Meets Criterion	Exceeds Criterion	Total Score
Performance Criteria				
I. Locates and characterizes a problem raised by supplied materials	1	2	3	
II. Locates evidence related to the problem	1	2	3	
III. Asks effective questions about the problem	1	2	3	
A. discovers its complexity		<input type="checkbox"/>		
B. discovers its potential solutions		<input type="checkbox"/>		
IV. Sufficiently evaluates assumptions (warrants) inherent in the argument(s) raised (or implied) by the problem	1	2	3	
A. enumerates assumptions		<input type="checkbox"/>		
B. evaluates their validity		<input type="checkbox"/>		
C. evaluates effects on others examining the problem		<input type="checkbox"/>		
V. Effectively evaluates the biases of the sources used to examine the problem	1	2	3	
A. enumerates biases		<input type="checkbox"/>		
B. evaluates their validity		<input type="checkbox"/>		
C. evaluates effects on others examining the problem		<input type="checkbox"/>		
Total Score (15 possible)				

Appendix D - SLO 3 Rubric

FYS 101: First Year Seminar Writing Assessment Scoring Guide/Rubric

Name: _____ Date: _____

Target Audience: _____ Writing Topic _____

SLO	1c Write effectively for a variety of target audiences using conventions associated with standard English	Fails to Meet Criterion	Meets Criterion	Exceeds Criterion	Total Score
1c	I. Used conventions associated with standard English with no more than 3 errors per page (CHECK all major problem areas)	1	2	3	
	A. Appropriate grammar		<input type="checkbox"/>		
	B. Appropriate punctuation		<input type="checkbox"/>		
	C. Appropriate spelling		<input type="checkbox"/>		
	D. Appropriate wording		<input type="checkbox"/>		
1c	II. Organized writing				
	A. Logical organization of information	1	2	3	
	B. Effective opening	1	2	3	
	C. Effective transitions	1	2	3	
	D. Effective conclusion	1	2	3	
	E. Writing is purposeful and focused	1	2	3	
1c	III. Applied critical elements of writing				
	A. Engaged the target audience	1	2	3	
	B. Used a consistent writing style/voice	1	2	3	
	C. Cited sources appropriately	1	2	3	
	D. Used quoted work judiciously	1	2	3	
	E. Examples or details enriched the writing	1	2	3	
Content					
2d	IV. Perceived and articulated ethical consequences of decisions and actions				
	A. Recognized an ethical problem related to the topic	1	2	3	
	B. Clearly explained ethical principles related to problem	1	2	3	
2e	V. Applied knowledge and skills to new settings and/or complex problems				

	A. Applied knowledge to identify information needed to address the situation or problem	1	2	3	
	B. Identified concepts & principles relevant to the topic	1	2	3	
	C. Synthesized key ideas	1	2	3	
	D. Drew conclusions related to the problem	1	2	3	
Q	Critical Thinking (QEP): Application to a complex problem				
QEP	SLO 3: Students improve their ability to make decisions and act based upon evidentiary information.				
	1. Effectively examines evidence for a solution	1	2	3	
	2. Effectively proposes a solution(s) to the problem	1	2	3	
	3. Effectively evaluates the assumptions (warrants) inherent in the argument for the solution to the problem	1	2	3	
	4. Evaluates the biases of alternative views to the sources that advocate for the solution the student supports	1	2	3	
	5. Acknowledges and effectively evaluates the claims of those who support and those who disagree with her/his solution to the problem	1	2	3	
	A. Acknowledges claims of those who support		<input type="checkbox"/>		
	B. Evaluates claims of those who support		<input type="checkbox"/>		
	C. Acknowledges claims of those who disagree		<input type="checkbox"/>		
	D. Evaluates claims of those who disagree		<input type="checkbox"/>		
	Total Score (66 possible)				