

**Quality Enhancement Plan (QEP)**  
**Academic Year Five 2014-2015 Report**



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## Introduction

The purpose of this report is to provide an update on QEP events which occurred at Fort Valley State University during the fifth academic year of the QEP’s implementation. The following areas will be covered:

- [Budget and other Updates](#)
- [Events](#)
- [Assessments](#)
- [Summary of Assessment Results](#)

## BUDGET AND OTHER UPDATES

Based on data provided by the Office of Business and Finances (OBF) for 2014-2015, the QEP budget is appropriated at a total amount of \$155,934.00. The accounting data shows the following QEP budgetary activities as of end of fall 2014 semester:

<b>ITEMS</b>	<b>Budgeted</b>	<b>Used</b>	<b>Remaining</b>
Personnel Services	\$152,136.00	\$70,230.04	\$81,905.96
Travel	\$ 2,800.00	\$ 860.88	\$ 1,939.12
Operating Supplies and Expenses	\$ 998.00	\$ 997.90	\$ .10
<b>Total</b>	<b>\$155,934.00</b>	<b>\$72,088.82</b>	<b>\$83,845.18</b>

Table 1

### *Personnel Services*

Currently the QEP director and clerical assistant are the only positions being paid from the QEP’s personnel budget. The clerical assistant’s vacancy was refilled as of July 15, 2014. On November 21, 2014, a new request was sent to the Office of Academic Affairs to restart the effort to acquire a coordinator for the QEP math lab. It was agreed by Provost Jessica Bailey and the leadership of the Center for Retention Services, Dr. Donte Truss, and Mrs. Jocelyn Powell-Neal, that student tutors for that lab would be supplied through the Office of Retention Services.

Students in QEP English 1102 classes, who require assistance with reading and writing, were directed to the lab in Miller Hall where Ms. Dorothy Hardman, who works for the Office of Retention Services, is the lab director. This lab was also supplemented by student tutors. These support mechanisms are expected to help improve results relating to the graduation requirement that students will either score in the top 56<sup>th</sup> percentile on the critical thinking section of College Assessment of Academic Proficiency (CAAP) Exam, or at least 70% on course-embedded critical thinking assessments.

The following (Table 2) is a summary of positions and their current status:

Positions Requested	Status
QEP Director	Filled
Clerical Assistant	Filled
Reading/ Writing Lab Coordinator	Filled by reassignment
Math Lab Coordinator	Vacant
Faculty Development Coordinator	Vacant
Student tutors	Acquired through Office of Retention Services

Table 2

## EVENTS

There are two major events which are facilitated by the QEP/ ECT Office to highlight critical thinking campus-wide: Critical Thinking Day, and Research Day. Critical Thinking Day recognizes students who apply principles of the Enhancing Critical Thinking (ECT) Model being used in English and Math classes (English 1102, Math 1111 & 1113), to reach exemplary levels of academic performance. Critical Thinking Day 2014 recognized an outstanding community leader, the Mayor of the City of Fort Valley, Honorable Barbara Williams, as an exemplary critical thinker. Research Day is an effort to display students' critical thinking through inquiry-based learning, namely research involving data collection, analysis, and formal presentations through posters or breakout oral sessions. This is a campus-wide event that primarily focuses on student research. For the first time, the next Research Day 2015 will be facilitated solely by the Office of Undergraduate Research.

## ASSESSMENTS

There are two assessment approaches being used to evaluate students' critical thinking skills at FVSU, the first is the critical thinking subsection on the *Collegiate Assessment of Academic Proficiency (CAAP) Exam*, which is facilitated by the Office of Institutional Research. The second are *course-embedded evaluations* which are specific to the academic departments, based on the ECT reasoning strategies model, and developed by the faculty. These course-embedded evaluations are administered toward the beginning (pretests) and end (posttests) of each semester, while the ECT model is being taught as part of the course content.

### *CAAP Exam*

There are 32 items on the critical thinking subsection of the CAAP exam. As part of FVSU's Georgia Board of Regents core curriculum agreement, students must receive a scaled score in at least the top 56<sup>th</sup> percentile of those taking the exam. Students take the CAAP exam by the end of their sophomore year, when they have completed at least 45 semester credits. Students who do not score in the top 56<sup>th</sup> percentile are required to retake the critical thinking section **only**, until they do, as completion is noted on their transcript, or they can also meet the requirement if they score 70% or better on course-embedded critical thinking posttests. As an additional measure, a

critical thinking assessment developed by faculty in the English department is available in the Testing Office where students can retake it until the requisite score is achieved.

The QEP reading and writing lab is available to assist students with preparing for the CAAP Exam. Tutors are available to assist with class assignments, and to provide individual assistance.

### *Fall 2014 CAAP Results*

A total of 99 FVSU students were tested on the critical thinking section of the CAAP exam during fall 2014 semester. Of that number fifty three students (53.53%) scored in the required top 56<sup>th</sup> percentile. The lowest scaled score was 48 and the highest was 73. The average scaled score was 57.70%. These results were very encouraging as 36 FVSU students were honored for scoring above the national average on various areas of the CAAP exam. Twenty seven (75%) of the 36 students honored scored above the national average in critical thinking.

CAAP results during fall 2014 semester met projected outcomes.

<b>Collegiate Assessment of Academic Proficiency (CAAP) FVSU Critical Thinking Summary</b>										
<b>Criteria</b>	<b>Fall 2010</b>	<b>Spr. 2011</b>	<b>Fall 2011</b>	<b>Spr. 2012</b>	<b>Fall 2012</b>	<b>Spr. 2013</b>	<b>Fall 2013</b>	<b>Spr. 2014</b>	<b>Fall 2014</b>	<b>Spr. 2015</b>
No. of students tested	97	131	83	100	68	20	70	23	99	114
Scores Range	47 – 70	46-68	47 – 70	50-72	50 – 68	54-67	49-72	48-71	48-73	48-72
Avg. Scaled Scores	58.29	57.15	57.9	58.3	58.54	60	58.96	59.04	57.70	58.30
No. in top 56 <sup>th</sup> percent	Data not collected	Data not collected	Data not collected	Data not collected	33 (48.5)	13 (65)	43 (61.4)	13 (56.5)	53 (53.54)	59 (52%)
No. above nat'l avg.	Data not collected	Data not collected	Data not collected	Data not collected	28 (41)	12 (60)	35 (50)	9 (39)	27 (27.3)	51 (45%)
<b>** Highest possible score = 72; as of fall 2014 highest possible score = 73</b>										

**Table 3**

### *What do these CAAP results mean for the impact of the QEP at FVSU?*

CAAP results during fall 2014 met projected outcomes. Average scores were strong. Since the QEP/ECT model is being implemented in every section of English 1102 and Math 1111 and 1113, it is fairly safe to assume that every student taking the CAAP exam encountered critical thinking pedagogies prior to taking the CAAP Exam. This means that CAAP results can provide meaningful information about whether or not the ECT model is effective in improving students' critical thinking skills. Consistently satisfactory results on the CAAP exam seem to suggest that the ECT model is making a difference in improving student performance in critical thinking.

## ***COURSE EMBEDDED ASSESSMENTS***

Course-embedded pre and post assessments are also used to assess students' critical thinking skills in relation to the ECT reasoning strategies model that is implemented in each QEP/ECT course. The following is a list of the reasoning strategies implemented in each department:

### *English*

- Inductive reasoning
- Deductive reasoning
- Comparative reasoning
- Abductive reasoning
- Analogical reasoning

### *Math*

- Criteria reasoning
- Interpretive reasoning
- Deductive reasoning
- Analytical reasoning
- Adaptive reasoning
- Strategic reasoning

In English and Math, faculty who taught QEP/ ECT course sections used a standardized module for their respective discipline, which means they were likely to cover similar topics and give similar types of assignments. Once again, students are required to demonstrate proficiency in critical thinking before they can graduate. This means they must either score in the top 56<sup>th</sup> percentile on the CAAP exam, or score 70% or above on the posttest course embedded assessment. The following results are therefore a summary of what was found by examining course embedded pre and posttests.

## **Methodology**

The central theme of the QEP at FVSU is enhancing critical thinking (ECT). In order to enhance critical thinking among students, intentional efforts must be made among faculty to enhance critical thinking pedagogy. Consequently, the QEP Director, Dr. Ian Toppin also serves as Director of the Center for Teaching and Learning (CTL), which gives him the opportunity to ensure that appropriate pedagogy training is implemented to guide the QEP process. The CTL provides adequate opportunities for faculty to engage in critical thinking training activities.

English 1102, and Math 1111 and 1113, were selected because they are core classes. All FVSU students are required to take these courses, which increases the likelihood that all students will at some point encounter formal critical thinking instruction during their matriculation at FVSU, and especially before attempting the CAAP exam. Students were selected simply by being enrolled in the courses. There was no predetermined designation of which students would be in which courses. Students were asked to sign consent forms in order to be included in this study before taking the pretest at the beginning of the semester. The same tests were given as posttests at the end of the semester in order to make inferences about differences in scores and about the impact of ECT interventions during the semester. While all scores are reported to the Office of Institutional Research for record-keeping in response to the graduation requirement, only scores from students who took both the pre and posttests were used in this report, scores are not used in this report if the student took one test but not the other.

## Questions

Results are based on the following questions:

1. What is the difference in pre and posttest average scores of students in QEP/ ECT English 1102 courses?
2. Are there overall statistically significant differences in pre and posttest scores in QEP/ ECT English 1102 courses at the .05 alpha level?
3. What is the difference in pre and posttest average scores of students in QEP/ ECT Math 1111 and 1113 courses?
4. Are there statistically significant differences in pre and posttest scores in QEP/ ECT Math 1111 and 1113 courses at the .05 alpha level?

## Null Hypothesis ( $H_0: \mu_1 < \mu_2$ )

There is a statistically significant difference in pretest and posttest scores in QEP/ ECT English 1102, and QEP/ ECT Math 1111 and 1113 courses.

## ENGLISH RESULTS

**Question 1:** What is the difference in pre and posttest average scores of students in QEP/ ECT English 1102 courses?

- *FALL 2014*

There were 153 students who took both the pre and post tests in QEP/ ECT English 1102. Their pretest average score was 71.90%, while their average posttest score was 78.77%. This result was extremely encouraging, as it indicated vast improvement above any previous semester. This may have been attributed to the fact that the assessment used this semester was also used as the Regents Writing Exam, with specific critical thinking components included. This means that

students were more likely to approach this assessment with a greater degree of seriousness than they would the previously used QEP assessment. The following table summarizes the results:

Test Type	QEP Eng-1102
Pretest	71.90%
Posttest	78.77%

**Table 4**

**Question 2:** Are there overall statistically significant differences in pre and posttest scores in QEP/ ECT English 1102 courses at the .05 alpha level?

T values were calculated to compare the size of the difference between pretest and posttest scores in QEP/ ECT English 1102. The calculated t value as shown in table 5 is .63. At .025 alpha level (two tailed), the critical value was 1.96, and  $P = 0.00$ . The small P value is an indication that the intervention during the semester was effective. At the .05 ( $\alpha = .05$ , one tail) level, the critical t-value was 1.65, and once again  $P = 0.00$ . This means that the probability of the difference is less than the alpha level. Additionally, the fact that the calculated t value is less than the critical value, indicates that the null hypothesis should be accepted (There is a statistically significant difference in pretest and posttest scores in QEP/ ECT English 1102 courses). Standard deviation result (9.39) was reasonable since means scores were acceptable. This result indicated that scores were moderately close to the mean. In other words scores generally fluctuated nine points above or below the mean. A test of Pearson's Correlation (.44) indicated no correlation ( $<.50$ ) between pre and posttests scores. The overall results seemed to indicate that there is statistical significance in improvement between pre and posttest scores. The null hypothesis must therefore be accepted.

Observations	153	
No. of scores less than 70%	34 (22%)	
Mean Scores	78.77 (posttest)	71.90 (pretest)
df	(n-1)=153-1=152	
Standard Deviation	9.39	
Calculate t value	0.63	
t-test $P(T \leq t)$ 1 tail	0.00	
t Critical one-tail	1.65	
t-test $P(T \leq t)$ 2 tail	0.00	
t Critical two-tail	1.96	
Pearson's Correlation	.44	

**Table 5**

- *English 1102 – SPRING 2015*

There were 175 students who took both the pre and posttests in QEP/ ECT English 1102. Their pretest average score was 72.37%, while their average posttest score was 76.71%. This result

was encouraging, as it indicated improvement in average performance. Once again, this may have been attributed to the fact that the assessment used this semester was also used as the Regents Writing Exam, with specific critical thinking components included. This means that students were more likely to approach this assessment with a greater degree of seriousness than they would on previously used QEP assessments. The following table summarizes the results:

Test Type	QEP Eng-1102
Pretest	72.37%
Posttest	76.71%

Table 6

**Question 2:** Are there overall statistically significant differences in pre and posttest scores in QEP/ ECT English 1102 courses at the .05 alpha level?

T values were calculated to compare the size of the difference between pretest and posttest scores in QEP/ ECT English 1102. The calculated t value as shown in table 7 is .63. At .025 alpha level (two tailed), the critical value was 1.96, and  $P = 0.00$ . The small P value is an indication that the intervention during the semester was effective. At the .05 ( $\alpha = .05$ , one tail) level, the critical t-value was 1.65, and once again  $P = 0.00$ . This means that the probability of the difference is less than the alpha level. Additionally, the fact that the calculated t value is less than the critical value, indicates that the null hypothesis (there is a statistically significant difference in pretest and posttest scores in QEP/ ECT English 1102 courses) should be accepted. Standard deviation result (7.30) was reasonable since means scores were acceptable. This result indicated that scores were close to the mean. In other words scores generally fluctuated seven points above or below the mean. A test of Pearson's Correlation (.53) indicated correlation (>.50) between pre and posttests scores. The overall results seemed to indicate that there is statistical significance in improvement between pre and posttest scores. The null hypothesis must therefore be accepted.

Observations	175	
No. of scores less than 70%	17 (9.71%)	
Mean Scores	76.71 (posttest)	72.37 (pretest)
df	(n-1)=175-1=174	
Standard Deviation	7.30	
Calculated t value	0.26	
t-test $P(T \leq t)$ 1 tail	0.00	
t Critical one-tail	1.65	
t-test $P(T \leq t)$ 2 tail	0.00	
t Critical two-tail	1.96	
Pearson's Correlation	.53	

Table 7

## **MATH RESULTS**

**Question 3:** What is the difference in pre and posttest average scores of students in QEP/ ECT Math 1111 and 1113 courses?

- **Math 1111 – FALL 2014**

In Math 1111 there were 81 students who took both the pre and posttests. The average pretest score was 29.20% and the average posttest score was 39.04%, which was a slight improvement over average pretest scores. However overall averages in Math 1111 suggested that major improvements in performance are needed.

<b>Test Type</b>	<b>ECT Math-1111</b>
Pretest	29.2%
Posttest	39.04%

**Table 8**

T values were calculated to compare the size of the difference between pretest and posttest scores in QEP/ ECT Math 1111. The calculated  $t$  value as shown in table 9 is .44. At .025 alpha level (two tailed), the critical value was 1.99, and  $P = 0.00$ . The small  $P$  value is an indication that the intervention during the semester was effective. At the .05 ( $\alpha = .05$ , one tail) level, the critical t-value was 1.66, and once again  $P = 0.00$ . This means that the probability of the difference is less than the alpha level. Additionally, the fact that the calculated t value is less than the critical value, indicates that the null hypothesis should be accepted (There is a statistically significant difference in pretest and posttest scores in QEP/ ECT Math 1111 courses). Standard deviation result (15.24) was high indicating that scores were not scattered closely to the mean and that there were wide variations in scores. A test of Pearson's Correlation (.01) also indicated no correlation ( $<.50$ ) between pre and posttests scores, which indicates that students' pretest and posttest scores were not good predictors of each other. These results seemed to indicate that while there is statistical significance in improvement between pre and posttest scores, the scores were on average so low that the relationship between scores and student success was also low.

<b>Observations</b>	<b>81</b>	
<b>No. of scores less than 70%</b>	<b>77 (95%)</b>	
<b>Mean Scores</b>	<b>39.04 (posttest)</b>	<b>29.20 (pretest)</b>
<b>df</b>	<b>(n-1)=81-1=80</b>	
<b>Standard Deviation</b>	<b>15.24</b>	
<b>Calculate t value</b>	<b>0.44</b>	
<b>t-test P(T&lt;=t) 1 tail</b>	<b>0.00</b>	
<b>t Critical one-tail</b>	<b>1.66</b>	
<b>t-test P(T&lt;=t) 2 tail</b>	<b>0.00</b>	
<b>t Critical two-tail</b>	<b>1.99</b>	
<b>Pearson's Correlation</b>	<b>.01</b>	

**Table 9**

- **Math 1113 – FALL 2014**

In Math 1113, there were 52 students who both took the pre and post tests. Their average pretest score was 26.2%; while the average posttest score was 61.9%. This was a significant improvement (36%) over pretest scores. However, once again, overall average performance on both pre and posttests indicated that significant improvements are needed in Math 1113.

Test Type	ECTMath-1113
Pretest	26.2%
Posttest	61.9%

**Table 10**

T values were calculated to compare the size of the difference between pretest and posttest scores in QEP/ ECT Math 1113. The calculated t value as shown in table 11 is .81. At .025 alpha level (two tailed), the critical value was 2.01, and P = 0.00. The small P value is an indication that the intervention during the semester was effective. At the .05 ( $\alpha = .05$ , one tail) level, the critical t-value was 1.67, and once again P = 0.00. This means that the probability of the difference is less than the alpha level. Additionally, the fact that the calculated t value is less than the critical value, indicates that the null hypothesis should be accepted (There is a statistically significant difference in pretest and posttest scores in QEP/ ECT Math 1113 courses). Standard deviation results (25.47) indicated that scores were not clustered closely to the mean and that there were wide variations in scores. A test of Pearson’s Correlation (-.03) also indicated no correlation (<.50) between pre and posttests scores. These results seemed to indicate that while there is statistical significance in improvement between pre and posttest scores, the scores were on average were so low that the relationship between scores and student success was also low.

<b>Observations</b>	<b>52</b>	
<b>No. of scores less than 70%</b>	<b>30 (57.69%)</b>	
<b>Mean Scores</b>	<b>43.43 (posttest)</b>	<b>29.66 (pretest)</b>
<b>df</b>	<b>(n-1)=52-1=51</b>	
<b>Standard Deviation</b>	<b>25.47</b>	
<b>Calculate t value</b>	<b>0.81</b>	
<b>t-test P(T&lt;=t) 1 tail</b>	<b>0.00</b>	
<b>t Critical one-tail</b>	<b>1.67</b>	
<b>t-test P(T&lt;=t) 2 tail</b>	<b>0.00</b>	
<b>t Critical two-tail</b>	<b>2.01</b>	
<b>Pearson’s Correlation</b>	<b>-.03</b>	

**Table 11**

- **Math 1111 – SPRING 2015**

In Math 1111 there were 44 students who took both the pre and posttests. The average pretest score was 27.82% and the average posttest score was 42.07%, which was a slight improvement over average pretest scores. However overall averages in Math 1111 suggested that major improvements in performance are needed since average scores were well below passing.

Test Type	ECT Math-1111
Pretest	27.82%
Posttest	42.07%

**Table 12**

T values were calculated to compare the size of the difference between pretest and posttest scores in QEP/ ECT Math 1111. The calculated  $t$  value as shown in table 13 is .70. At .025 alpha level (two tailed), the critical value was 2.02, and  $P = 0.00$ . The small  $P$  value is an indication that the intervention during the semester was effective. At the .05 ( $\alpha = .05$ , one tail) level, the critical  $t$ -value was 1.68, and once again  $P = 0.00$ . This means that the probability of the difference is less than the alpha level. Additionally, the fact that the calculated  $t$  value is less than the critical value, indicates that the null hypothesis should be accepted (There is a statistically significant difference in pretest and posttest scores in QEP/ ECT Math 1111 courses). Standard deviation result (16.43) was high indicating that scores were not scattered closely to the mean and that there were wide variations in scores. A test of Pearson's Correlation (.50) also indicated a possible correlation ( $>.50$ ) between pre and posttests scores, which indicates that students' pretest and posttest scores were good predictors of each other. These results seemed to indicate that while there is statistical significance in improvement between pre and posttest scores, the scores were on average so low that the relationship between scores seems to suggest that low pretest scores were predictors of low posttest scores.

Observations	44	
No. of scores less than 70%	44 (100%)	
Mean Scores	42.07 (posttest)	27.82 (pretest)
df	(n-1)=44-1=43	
Standard Deviation	16.43	
Calculate t value	0.70	
t-test P(T<=t) 1 tail	0.00	
t Critical one-tail	1.68	
t-test P(T<=t) 2 tail	0.00	
t Critical two-tail	2.02	
Pearson's Correlation	.50	

**Table 13**

- **Math 1113 – SPRING 2015**

In Math 1113, there were 24 students who both took the pre and posttests. Their average pretest score was 29.67%; while the average posttest score was 42.83%. Once again, posttest scores improved slightly over pretest scores. However, overall average performance on both pre and posttests indicated that significant improvements are needed in Math 1113.

<b>Test Type</b>	<b>ECTMath-1113</b>
Pretest	29.67%
Posttest	42.83%

**Table 14**

T values were also calculated to compare the size of the difference between pretest and posttest scores in QEP/ ECT Math 1113. The calculated  $t$  value as shown in table 15 is .67. At .025 alpha level (two tailed), the critical value was 2.07, and  $P = 0.00$ . The small  $P$  value is an indication that the intervention during the semester was effective. At the .05 ( $\alpha = .05$ , one tail) level, the critical  $t$ -value was 1.71, and once again  $P = 0.00$ . This means that the probability of the difference is less than the alpha level. Additionally, the fact that the calculated  $t$  value is less than the critical value, indicates that the null hypothesis should be accepted (There is a statistically significant difference in pretest and posttest scores in QEP/ ECT Math 1111 courses). Standard deviation result (14.08) was high, indicating that scores were not scattered closely to the mean and that there were wide variations in scores. A test of Pearson's Correlation (.29) indicated no correlation (<.50) between pre and posttests scores, which indicates that students' pretest and posttest scores were not good predictors of each other.

<b>Observations</b>	<b>24</b>	
<b>No. of scores less than 70%</b>	<b>22 (91.67%)</b>	
<b>Mean Scores</b>	<b>42.83 (posttest)</b>	<b>29.67 (pretest)</b>
<b>df</b>	<b>(n-1)=24-1=23</b>	
<b>Standard Deviation</b>	<b>14.08</b>	
<b>Calculate t value</b>	<b>0.67</b>	
<b>t-test P(T&lt;=t) 1 tail</b>	<b>0.00</b>	
<b>t Critical one-tail</b>	<b>1.71</b>	
<b>t-test P(T&lt;=t) 2 tail</b>	<b>0.00</b>	
<b>t Critical two-tail</b>	<b>2.07</b>	
<b>Pearson's Correlation</b>	<b>.29</b>	

**Table 15**

## **SUMMARY OF ASSESSMENT RESULTS**

Student performances on the CAAP exam during fall 2014 and spring 2015 semesters were once again encouraging in English 1102, but needs significant improvements in Math 1111 and 1113. As it relates to the CAAP exam, results were very encouraging. The goal was for 50% of students to score in the top 56<sup>th</sup> percentile; however, 54% scored in the top 56<sup>th</sup> percentile in fall and 51.75 in spring. Twenty seven percent of those who took the CAAP exam in fall 2014 scored above the national average, while 33% score above the national average in spring 2015. This means that FVSU students performed better on average on the CAAP instrument than was projected.

As it relates to course-embedded assessments, there was significant improvement in results from English 1102 classes. This may be attributed to the fact that the Regents Writing Exam was retooled and combined with the QEP pre/posttests, allowing students and faculty to emphasize serious focus on a single rather than multiple assessments. Scores on this QEP assessment have been the best this academic year to date.

Average pretest scores in fall 2014 and spring 2015, were routinely low in both Math 1111 and 1113, which seemed to indicate that students came in with low critical thinking math skills. However, posttest scores showed improvements in both classes, particularly Math 1113, albeit they did not reach high enough. This leads to the conclusion that students' critical thinking aptitude in Math is generally below average.

<b>Course Embedded Assessments Average Scores for Fall 2010 to Spring 2013</b>																	
<b>Fall 2010</b>			<b>Spr. 2011</b>			<b>Fall 2011</b>			<b>Spr. 2012</b>			<b>Fall 2012</b>			<b>Spr. 2013</b>		
<b>#</b>	<b>Pre</b>	<b>Post</b>	<b>#</b>	<b>Pre</b>	<b>Post</b>	<b>#</b>	<b>Pre</b>	<b>Post</b>	<b>#</b>	<b>Pre</b>	<b>Post</b>	<b>#</b>	<b>Pre</b>	<b>Post</b>	<b>#</b>	<b>Pre</b>	<b>Post</b>
<b>ENGLISH 1101</b>																	
99	76	79	11	74	73	147	74	81	35	67	74	No longer tested					
<b>ENGLISH 1102</b>																	
41	75	80	36	76	81	38	84	83	84	72	78	134	68	61	249	71	74
<b>MATH 1111</b>																	
87	54	71	54	54	75	104	50	73	83	55	58	144	41	57	72	41	53
<b>MATH 1113</b>																	
37	61	76	39	48	74	33	31	44	44	30	59	57	22	40	59	23	30

**Table 16**

# - Number of students tested  
 Pre – Pretest scores  
 Post – Posttest scores

<b>Course Embedded Assessments Average Scores for Fall 2013 to Spring 2015</b>											
<b>Fall 2013</b>			<b>Spr. 2014</b>			<b>Fall 2014</b>			<b>Spr. 2015</b>		
<b>#</b>	<b>Pre</b>	<b>Post</b>	<b>#</b>	<b>Pre</b>	<b>Post</b>	<b>#</b>	<b>Pre</b>	<b>Post</b>	<b>#</b>	<b>Pre</b>	<b>Post</b>
<b>ENGLISH 1102</b>											
115	16	52	244	48	50	153	71.9	78.8	175	72.4	76.7
<b>MATH 1111</b>											
108	41	49	91	29	37	81	29.2	39	44	27.8	42.1
<b>MATH 1113</b>											
35	30	43	21	28	60	52	26.2	61.9	24	29.7	42.8

**Table 17**

## Implications of Assessment Results

Results seem to be suggesting that academic maturity may be a significant factor in improving students' critical thinking skills. This is borne out in the fact that course-embedded assessments, which students take during their freshman year, continue to show routinely low results, particularly in Math. However, results on the CAAP exam, which students take following their sophomore year, provide a more positive outlook. The reverse was expected when this QEP study commenced. These results seem to suggest that by the time students reach the end of their

sophomore year when they take the CAAP exam, and when they should be more academically mature, their critical thinking skills are significantly improved.