Quality Enhancement Plan (QEP)

Academic Year Three (Fall 2012 – Spring 2013) 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 second academic year of the QEP's implementation. The following areas will be covered:

BUDGET AND OTHER UPDATES

During the last half of the previous academic year (January thru August 2012), Dr. Ian Toppin, QEP Director left Fort Valley State University, but returned in August 2012. During that time Dr. Josephine Davis served as Interim QEP Director. Consequently, the proposed QEP budget Dr. Davis received in July for the 2012-2013 academic year indicated the following in summary:

- **Personnel Services** $199, 858
- **Operating Supplies and Expenses** $ 97, 500
- **Total** $297, 358

Personnel Services

The QEP/ ECT administrative assistant resigned in September 2012 to take a position at another institution and this position is still currently vacant. Funds from the QEP budget are currently being used to pay the entire salary of one faculty member from the Department of English and Foreign Languages who does not directly work for the QEP/ ECT Office. Efforts to resolve this situation have so far been unsuccessful, but will be recommended for resolution in the next academic year's budget.

A summary of Personnel Services suggests that most of the proposed budget is being under-utilized by the QEP, which under current budgetary constraints is a good thing, albeit unsustainable, if the quality of services to enhance critical thinking is to improve moving forward.

Needs: The administrative assistant vacancy desperately needs to be filled. Additionally, the new graduation requirement for students to make a set cutoff score on the critical thinking section of College Assessment of Academic Proficiency (CAAP) Exam, mandates that the QEP/ ECT lab director position be filled so that there will be someone whose main responsibilities would be to prepare and remediate students who need to take, or retake the CAAP exam.

The following (Table 1) is a summary of positions and their current status:

Positions Requested	Status
QEP Director	Filled
Clerical Assistant	Vacant – Assistant took position at another institution
Reading/ Writing Lab Coordinator	Vacant - Faculty receive a small stipend to serve as QEP Liaison
Math Lab Coordinator	Vacant - Faculty receive a small stipend to serve as QEP Liaison
Faculty Development Coordinator	Vacant– but funds being used for non-QEP employee
Student tutors	Funded through Federal Work/ Study

Table 1

Operating Supplies and Expenses

Thirty computers, which were purchased from the previous academic year's budget, were delivered and installed in a new QEP/ ECT computer lab in CTM 221. Four computers were placed in the Center for Teaching and Learning (CTL), where students who need to complete proctored assignments may do so, and where faculty training is conducted.

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 Model being used in English and Math classes (English 1102, Math 1111 & 1113), to reach exemplary levels of academic performance. Research Day is an effort to display the broader applications of critical thinking to data collection and analysis. This is a campus-wide event, opened to both faculty and students. Students get an opportunity to exhibit and discuss their research and analyses with the entire academic community. Subcommittees from the QEP Steering Committee have been selected and given the charge to lead the effort to organize these two events.

EVENTS

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. After one semester away, the QEP Director, Dr. Ian Toppin returned to FVSU in August 2012, to become Director of both QEP and Center for Teaching and Learning (CTL), which gives him the opportunity to ensure that appropriate pedagogy training is implemented to guide the QEP process. A teaching and learning center has been established to provide adequate opportunities for faculty to engage in critical thinking training activities. The center hosted the following training sessions this year:

- *Strategies for Developing a well-organized pre/post tenure portfolio*
- *Mobility 2012*
- *Strategies for using multiple intelligences to enhance critical thinking*
- *Four departmental communities of practice sessions*

Each training presenter received a certificate of appreciation for their service to the institution and their colleagues, and each attendee received a certificate of participation for attending.

The office of ECT hosted the annual Research Day 2013. This year seventeen students gave oral presentations of their research, while 33 gave poster presentations. The event was opened to the campus and entire community.

The Office of ECT also hosted Critical Thinking Day 2013. This year 45 students were honored. Thirty three were presented with honors provided by the CAAP exam for scoring above the national average on the critical thinking section of the exam. Twelve were honored by the recommendation of their faculty for demonstrating outstanding critical thinking skills in performing class-related assignments.

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 of 62 or above on the critical thinking section of the CAAP exam. It is expected that this score will place our students in at least the top 56th percentile of those taking the exam, realizing that percentile estimates are always unstable. Starting in fall 2012 semester, it became a requirement for students to take the CAAP exam by the end of their sophomore year, when they have completed at least 45 semester credits. As mentioned, a score of 62 also became a requirement for graduation. Students who did not make this score are required to retake the critical thinking section **only**, until they do, as completion is noted on their transcript.

To assist students with preparing for the CAAP Exam, plans are being made to provide tutoring and specific instruction. A lab director is expected to be hired to coordinate this effort. The ideal plan would be to redirect QEP/ ECT funds that are currently being used to pay for an EFL faculty position, to this position.

Fall 2012 CAAP Results

A total of 68 FVSU students were tested on the critical thinking section of the CAAP exam during fall 2012 semester. Of that number thirty (33) students scored in the top 56th percentile.

The lowest scaled score was 50 and the highest was 68. The average scaled score was 58.54. These results were very encouraging as 28 (41%) of these students received honorary certificates from CAAP for scoring at or above the national average on the critical thinking section of the exam. When compared to previous years, CAAP results during fall 2012 semester showed great improvements.

Spring 2013 CAAP Results

A total of 20 FVSU students took the critical thinking section of the CAAP exam during Spring 2013 semester. Of that number 13 (65%) scored in the top 56th percentile. The lowest scaled score was 54 and the highest was 67. The average scaled score was 60. Twelve students (60%) received special honors directly from CAAP for scoring at or above the national average on the critical thinking section. Again, these results showed encouraging improvements.

Criteria	Fall 2010	Spring 2011	Fall 2011	Spring 2012	Fall 2012	Spring 2013
No. of students tested	97	131	83	100	68	20
Scaled Score Range	47 – 70	46-68	47 – 70	50-72	50 – 68	54-67
Average Scaled Scores	58.29	57.15	57.9	58.3	58.54	60
No. in top 56th percentile	No data	No data	No data	No data	33 (48.5%)	13 (65%)
No. above nat'l average	No data	No data	No data	No data	28 (41%)	12 (60%)

Table 2

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

When compared to previous years, CAAP results during fall 2012 and spring 2013 semesters showed significant improvements. During the early stages of implementation of the ECT model, it was not implemented in every section of the targeted courses; therefore the results only provided an idea of how FVSU students in general performed. There were no data analyses to cross-reference every individual student who took the CAAP exam with whether or not they also took at least one FVSU QEP course. However, starting in spring 2012, the ECT model has been used in all sections of the selected freshman level English and Math courses (Eng. 1102, and Math 1111 & 1113), and it is now safe to assume that every student taking the CAAP exam has encountered critical thinking pedagogies in a previous class at FVSU. This means that CAAP results can provide meaningful information about whether or not the ECT model is effective in improving students' critical thinking skills. The steady improvement in CAAP results 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 is 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. As mentioned before, during the early implementation stages of the QEP, there were certain sections of English and Math courses which were designated QEP sections, while other sections were not. This allowed comparisons to be made between sections which used ECT modules and those which did not. Also in the English department ECT modules were implemented in 1101 and 1102 classes. Starting in spring 2012, the module was only used in all English 1102 classes, not 1101.

Likewise, in the Math department, some sections of 1111 (algebra) and 1113 (pre-calculus) courses were QEP/ ECT sections while others were not. However, starting in spring 2012, all sections were designated as QEP/ ECT and began implementing the ECT modules. The following results are therefore a summary of the results of what was found by examining pre and post tests results in QEP/ ECT sections. That is to say, comparisons between QEP/ECT sections and non-QEP/ ECT sections can no longer be made since there were no longer any non-QEP/ ECT sections in any of the targeted courses during fall 2012 semester.

Starting this academic year (2012-2013), it has become a requirement for students to demonstrate proficiency in critical thinking before they can graduate. This means they must either score in the top 56th percentile on the CAAP exam, or score 70% or above on the posttest of the course embedded assessment.

Methodology

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 time 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 regard to the graduation requirement, only scores from students who took both the pre and posttests were used in this study, scores were discarded 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

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

Fall 2012

There were 134 students who took the pre and post tests in QEP/ ECT English 1102. Their pretest average score was 68.49%, while their average posttest score was 61.01%. This result was somewhat troubling, as it seemed to indicate that students came to English 1102 classes better prepared than when they left. Further investigation revealed that the posttests students were inadvertently given were different from the pretests. This may have accounted for discrepancy in scores. The following table summarizes the results:

Test Type	QEP Eng-1102
Pretest	68.49%
Posttest	61.01%

Table 3

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

- ***English 1102***

A t-test was done to compare pre and posttest scores in QEP/ ECT English 1102. It was not necessary to calculate the *t* value because descriptive statistics indicated that students' average score was not as high on the posttest as it was on the pretest. Table 4 provides additional descriptive information. Degrees of freedom were 133. The results clearly indicated that there was no positive statistically significant difference between students' pre and posttest scores. Standard deviation results showed that scores were not very closely clustered to the mean. A test of Pearson's Correlation (.35) also indicated a very low correlation between pre and posttests scores. As mentioned earlier, these results may have been affected by the fact that the pretest was different from the posttest. The null hypothesis must therefore be rejected.

Observations	134.00	
No. of scores less than 70%	89 (66.42%)	
Mean Scores	61.01 (posttest)	68.49 (pretest)
df	(n-1)=134-1=133	
Standard Deviation	15.95	
t-test P(T<=t) 1 tail	1.56E-06	
t Critical one-tail	N/A	
t-test P(T<=t) 2 tail	3.12E-06	
t Critical two-tail	N/A	
Pearson's Correlation	.35	

Table 4

The following tables are summaries of pretest and posttest results which were used as part of item analyses to identify how each student performed on various sections of the pretest, and to assist English 1102 professors in knowing which areas of critical thinking to focus on with individual students:

ANALYSIS OF FALL 2012 PRETEST SCORES							
Section	**# Tested**	**100-90**	**89-80**	**79-70**	**69-60**	**59-50**	**49 & Below**
Section-01	22	1	6	5	7	2	1
Section-02	20	0	3	6	6	4	1
Section-04	20	1	4	4	4	4	3
Section-06	20	1	3	4	7	4	1
Section-09	19	0	6	5	6	2	0
Section-10	22	1	3	5	8	1	4
Section-12	21	1	8	3	3	3	2
Section-11	18	0	2	4	6	4	3
Section-13	24	2	3	6	6	4	3
Section-14	22	0	3	8	4	6	1
Section-15	11	5	0	2	1	1	2
Totals	**219**	**12**	**41**	**52**	**58**	**35**	**21**

Table 5

ANALYSIS OF FALL 2012 POSTTEST SCORES							
Section	**# Tested**	**100-90**	**89-80**	**79-70**	**69-60**	**59-50**	**49 & Below**
Section-01	18	4	2	5	1	2	4
Section-02	0	0	0	0	0	0	0
Section-04	13	0	0	3	4	4	2
Section-06	17	0	2	4	3	4	4
Section-09	11	1	0	1	4	1	4
Section-10	14	1	0	2	4	6	1
Section-12	10	0	0	2	1	2	5
Section-11	13	0	0	4	3	2	4
Section-13	14	0	1	1	1	4	7
Section-14	19	1	1	6	6	3	2
Section-15	5	2	1	1	0	1	0
Totals	**134**	**9**	**7**	**29**	**27**	**29**	**33**

Table 6

Spring 2013

There were 249 students who took both the pre and posttests in QEP/ ECT English 1102. Their pretest average score was 71.2%, while their average posttest score was 74.3%. This result indicates that students came to English 1102 classes somewhat prepared and improved slightly by the end of the semester. The following table summarizes the results:

Test Type	QEP Eng-1102
Pretest	71.2%
Posttest	74.3%

Table 7

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

- ***English 1102***

A t-test was done to compare pre and posttest scores in QEP/ ECT English 1102. The calculated *t* value as shown in table 8 is .21. 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 (α = .05, one tail) level, the critical t-value was 1.64, and once again *P* = 0.00. 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). Table 8 provides additional descriptive information. Degrees of freedom were 248. The small (2.41) standard deviation results shows that scores were very closely clustered to the mean. A test of Pearson's Correlation (.54) indicated moderate correlation between pre and posttests scores, which means students' posttest scores were correlated to their pretest performance. The null hypothesis has been proven.

Observations	249.00	
No. of scores less than 70%	103 (41.4%)	
Mean Scores	74.3 (posttest)	71.2 (pretest)
df	(n-1)=134-1=133	
Calculated t value	.21	
Standard Deviation	2.41	
t-test P(T<=t) 1 tail	0.00	
t Critical one-tail	1.64	
t-test P(T<=t) 2 tail	0.00	
t Critical two-tail	1.96	
Pearson's Correlation	.54	

Table 8

The following tables are summaries of pretest and posttest results which were used as part of item analyses to identify how each student performed on various sections of the pretest, and to assist English 1102 professors in knowing which areas of critical thinking to focus on with individual students:

ANALYSIS OF SPRING 2013 PRETEST SCORES							
Section	**# Tested**	**100-90**	**89-80**	**79-70**	**69-60**	**59-50**	**49 & Below**
Section-01	21	5	11	3	0	1	1
Section-02	13	0	2	7	2	1	1
Section-04	15	0	4	1	3	3	1
Section-06	14	0	3	2	5	2	2
Section-09	17	2	6	2	3	3	1
Section-10	14	2	3	0	4	4	1
Section-12	16	1	7	2	4	2	0
Section-11	15	0	6	1	4	3	1
Section-13	23	1	2	2	10	6	2
Section-14	13	4	4	1	3	1	0
Section-15	19	1	3	3	9	3	0
Section-16	24	0	6	8	7	3	0
Section-17	21	1	5	6	4	5	0
Section-18	24	2	2	5	7	4	4
Totals	**249**	**19**	**64**	**43**	**65**	**41**	**14**

Table 9

ANALYSIS OF SPRING 2013 POSTTEST SCORES							
Section	**# Tested**	**100-90**	**89-80**	**79-70**	**69-60**	**59-50**	**49 & Below**
Section-01	21	6	10	0	5	0	0
Section-02	13	2	4	4	2	1	0
Section-04	15	0	7	4	4	0	0
Section-06	14	0	6	2	3	2	1
Section-09	17	4	6	3	2	1	1
Section-10	14	0	4	2	4	3	1
Section-12	16	2	8	2	4	0	0
Section-11	15	2	4	3	3	1	2
Section-13	23	2	5	2	8	6	0
Section-14	13	4	4	1	1	3	0
Section-15	19	1	3	8	4	3	0
Section-16	24	3	8	3	7	3	0
Section-17	21	0	4	5	9	2	1
Section-18	24	3	3	2	11	2	3
Totals	**249**	**29**	**76**	**41**	**67**	**27**	**9**

Table 10

MATH

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

Fall 2012

In Math 1111 there were 144 students who took the pre and post tests. The average pretest score was 41% and the average posttest score was 56.71%, which was an (15.71%) improvement over the pretest score.

In Math 1113, there were 57 students who took the pre and post tests. Their average pretest score was 22.34%; while the average posttest score was 56.71%. Though there was some improvement (8.26%) in posttest scores, overall average performance on both pre and posttests indicated that significant improvements are needed. The following table summarizes average scores from QEP/ ECT Math classes:

Test Type	ECT Math-1111	ECTMath-1113
Pretest	41%	22.34%
Posttest	56.71%	39.70%

Table 11

Question 4: Are there statistically significant differences in pre and posttest scores in QEP/ ECT Math 1111 and 1113 courses at the .05 alpha level?

- ***Math 1111***

T values were calculated to compare pretest and posttest scores in QEP/ ECT Math 1111. The calculated *t* value as shown in table 12 is .71. 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 1.96, and once again $P = 0.00$. 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 results indicated that scores were scattered and not clustered closely to the mean. A test of Pearson's Correlation (.38) also indicated a very low correlation (<.50) for 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.

Observations	144.00	
No. of scores less than 70%	112 (78%)	
Mean Scores	56.71 (posttest)	41 (pretest)
df	(n-1)=144-1=143	
Standard Deviation	16.15	
Calculated t value	.71	
ttest P(T<=t) 1 tail	0.00	
t Critical one-tail	1.64	
Ttest P(T<=t) 2 tail	0.00	
t Critical two-tail	1.96	
Pearson's Correl.	.38	

Table 12

- ***Math 1113***

T values were calculated to compare pretest and posttest scores in QEP/ ECT Math 1113. The calculated t value as shown in table 13 is .65. At .025 alpha level (two tailed), the critical value was 2.00, 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. 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 indicated that scores were scattered and not clustered closely to the mean. A test of Pearson's Correlation (.32) also indicated a very low 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.

Observations	57.00	
No. of scores less than 70%	50 (88%)	
Mean Scores	39.70 (posttest)	22.34 (pretest)
df	(n-1)=57-1=56	
Standard Deviation	18.11	
Calculated t value	.65	
P(T<=t) One tail	0.00	
t Critical one-tail	1.67	
P(T<=t) Two tail	0.00	
t Critical two-tail	2.00	
Pearson's Correl	0.32	

Table 13

The following tables are summaries of pretest and posttest results which were used as part of item analyses to identify how each student performed on various sections of the pretest, and to

assist Math 1111 professors in knowing which areas of critical thinking to focus on with individual students:

ANALYSIS OF FALL 2012 MATH-1111 PRETEST SCORES							
Section	**# Tested**	**100-90**	**89-80**	**79-70**	**69-60**	**59-50**	**49 & Below**
Section-01	18	0	0	0	1	5	12
Section-02	21	0	0	0	1	3	17
Section-04	23	0	0	0	0	3	20
Section-06	15	0	0	0	0	4	11
Section-09	10	0	0	0	0	3	7
Section-10	15	0	0	0	1	3	11
Section-12	18	0	0	0	1	3	14
Section-11	8	0	0	0	2	1	5
Section-13	16	0	0	1	2	3	10
Totals	**144**	**0**	**0**	**1**	**8**	**28**	**107**

Table 14

ANALYSIS OF FALL 2012 MATH-1111 POSTTEST SCORES							
Section	**# Tested**	**100-90**	**89-80**	**79-70**	**69-60**	**59-50**	**49 & Below**
Section-01	18	0	0	2	2	3	11
Section-02	21	0	0	1	6	6	8
Section-04	23	0	0	2	7	7	7
Section-06	15	0	0	5	2	4	4
Section-09	10	0	1	1	4	3	1
Section-10	15	0	1	4	6	2	2
Section-12	18	0	0	0	6	3	9
Section-11	8	0	0	1	1	5	1
Section-13	16	2	11	1	1	0	1
Totals	**144**	**2**	**13**	**17**	**35**	**33**	**44**

Table 15

ANALYSIS OF FALL 2012 MATH-1113 PRETEST SCORES							
Section	**# Tested**	**100-90**	**89-80**	**79-70**	**69-60**	**59-50**	**49 & Below**
Section-01	15	0	0	0	1	0	14
Section-02	15	0	0	0	0	0	15
Section-03	4	0	0	0	0	0	4
Section-4	23	0	0	0	0	0	23
Totals	**57**	**0**	**0**	**0**	**1**	**0**	**56**

Table 16

ANALYSIS OF FALL 2012 MATH-1113 POSTTEST SCORES							
Section	**# Tested**	**100-90**	**89-80**	**79-70**	**69-60**	**59-50**	**49 & Below**
Section-01	15	0	0	0	0	1	14
Section-02	15	0	0	0	1	0	14
Section-03	4	0	0	0	0	0	4
Section-4	23	0	2	5	4	9	3
Totals	**57**	**0**	**2**	**5**	**5**	**10**	**35**

Table 17

Spring 2013

In Math 1111 there were 72 students who took the pre and posttests. The average pretest score was 41% and the average posttest score was 53%, which was an (12%) improvement over the pretest score; Albeit, both sets of scores needed to show improvement. In Math 1113, there were 59 students who took the pre and posttests. Their average pretest score was 22.71%; while the average posttest score was 29.6%. Both pre and posttests scores indicated that significant improvements are needed. The following table summarizes average scores from QEP/ ECT Math classes:

Test Type	ECT Math-1111	ECTMath-1113
Pretest	41%	22.71%
Posttest	53%	29.6%

Table 18

Question 4 (Spring 2013): Are there statistically significant differences in pre and posttest scores in QEP/ ECT Math 1111 and 1113 courses at the .05 alpha level?

- ***Math 1111***

T values were calculated to compare pretest and posttest scores in QEP/ ECT Math 1111. The calculated *t* value as shown in table 19 is .56. 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 1.67, and once again $P = 0.00$. 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 results (18.53) indicated that scores were scattered and not clustered closely to the mean. A test of Pearson's Correlation (.44) also indicated a very low correlation (<.50) for 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.

Observations	72	
No. of scores less than 70%	58 (80.5%)	
Mean Scores	52.98 (posttest)	40.96 (pretest)
df	(n-1)=72-1=71	
Standard Deviation	18.53	
Calculated t value	.56	
ttest P(T<=t) 1 tail	0.00	
t Critical one-tail	1.67	
Ttest P(T<=t) 2 tail	0.00	
t Critical two-tail	1.99	
Pearson's Correl.	.44	

Table 19

- ***Math 1113***

T values were calculated to compare pretest and posttest scores in QEP/ ECT Math 1113. The calculated t value as shown in table 20 is .40. At .025 alpha level (two tailed), the critical value was 2.00, 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. 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 (12.39) indicated that scores were scattered and not clustered closely to the mean. A test of Pearson's Correlation (.09) also indicated a very low 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 so low that the relationship between scores and student success was also low.

Observations	59.00	
No. of scores less than 70%	59 (100%)	
Mean Scores	29.60 (posttest)	22.71 (pretest)
df	(n-1)=59-1=58	
Standard Deviation	12.39	
Calculated t value	.40	
P(T<=t) One tail	0.00	
t Critical one-tail	1.67	
P(T<=t) Two tail	0.00	
t Critical two-tail	2.00	
Pearson's Correl	0.09	

Table 20

The following tables are summaries of pretest and posttest results which were used as part of item analyses to identify how each student performed on various sections of the pretest, and to assist Math professors in knowing which areas of critical thinking to focus on with individual students:

ANALYSIS OF SPRING 2013 MATH-1111 PRETEST SCORES							
Section	**# Tested**	**100-90**	**89-80**	**79-70**	**69-60**	**59-50**	**49 & Below**
Section-01	12	0	0	0	0	2	10
Section-02	15	0	0	0	4	2	9
Section-04	13	0	0	0	2	3	8
Section-06	17	0	0	0	1	3	13
Section-09	15	0	0	0	2	3	10
Totals	**72**	**0**	**0**	**0**	**9**	**13**	**50**

Table 21

ANALYSIS OF SPRING 2013 MATH-1111 POSTTEST SCORES							
Section	**# Tested**	**100-90**	**89-80**	**79-70**	**69-60**	**59-50**	**49 & Below**
Section-01	12	0	0	1	3	3	5
Section-02	15	0	0	3	0	1	11
Section-04	13	0	0	0	7	3	3
Section-06	17	0	2	11	3	0	1
Section-09	15	0	1	0	5	4	5
Totals	**72**	**0**	**3**	**15**	**18**	**11**	**25**

Table 22

ANALYSIS OF SPRING 2013 MATH-1113 PRETEST SCORES							
Section	**# Tested**	**100-90**	**89-80**	**79-70**	**69-60**	**59-50**	**49 & Below**
Section-01	25	0	0	0	0	0	25
Section-02	21	0	0	0	0	0	21
Section-03	13	0	0	0	0	0	13
Totals	**59**	**0**	**0**	**0**	**0**	**0**	**59**

Table 23

ANALYSIS OF SPRING 2013 MATH-1113 POSTTEST SCORES							
Section	**# Tested**	**100-90**	**89-80**	**79-70**	**69-60**	**59-50**	**49 & Below**
Section-01	25	0	0	0	1	2	22
Section-02	21	0	0	0	0	0	21
Section-03	13	0	0	0	0	0	13
Totals	**59**	**0**	**0**	**0**	**1**	**2**	**56**

Table 24

Summary of Assessment Results

Students' performance on the CAAP exam was encouraging. They generally performed better on average during academic year 2012-2013, than any other time since the CAAP instrument has been used with FVSU students.

Average scores in fall 2012 English 1102, did not show any gains between pre to posttests. In fact, average posttest scores were lower than average pretest scores. This may be attributed to the fact that the pretest was different from the posttest. However spring 2013 results were better.

Average pretest scores in fall 2012 were routinely low in both Math 1111 and 1113, which seemed to indicate that students came in with low critical thinking skills. In spring 2013, entrance scores were slightly better than fall, but still below average. This resulted in lower posttest average scores, even though there were improvements between average pre and post tests. Because scores were so low at the beginning, they did not reach high enough to suggest that students' critical thinking aptitude in Math was above average.

The results from course embedded assessments suggest that much work needs to be done to assist students in improving their critical thinking skills so that their performance on the CAAP exam will reflect that improvement. Stronger remediation efforts are needed to respond to the serious implications of the course embedded assessment results.

FUTURE PLANS

The following suggestions are priorities moving forward:

- Improve remediation services for students who show deficiencies in critical thinking.
- Broaden the use of the reasoning strategies and use them as the compass which guides course redesign. This will make it easier to define what we mean by "Critical Thinking," and to show how we propose to know when it has occurred.
- Provide more faculty training on implementing the reasoning strategies, and partner with departments to offer training which may be specific to them.
- Improve incentives and accountability (documentation) procedures for faculty who implement ECT strategies.
- Promote and expand on the use of research as a means of enhancing critical thinking.
- Create greater campus awareness by broadening the number of honorees at *Critical Thinking Day*.
- Continue to advocate for the financial support documented in the QEP.
- Advocate for greater support from FVSU administration and community.
- Share our story through the QEP website, newsletters, marketing and communications and any other means.
- Stay SACS ready by documenting as we go.