# Quality Enhancement Plan (QEP)

# Academic Year One (2010 – 2011) Report


**Prepared By**

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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 first academic year of the QEP's implementation. The following areas will be covered:



## HIRING UPDATES

The Director of QEP, and author of this report was hired in August 2010. Before arriving much work was done by the QEP committee, and particularly by Dr. Josephine Davis, who initiated the plan as part of FVSU's successful effort to attain reaccreditation by the Southern Association of Colleges and Schools (SACS). A budget was developed for the QEP with appropriations for new QEP faculty, staff and student support, and equipment. Prior to the director's arrival at FVSU, two individuals were hired with dual roles to teach English courses and to serve as directors of the QEP reading and QEP writing labs respectively. A QEP Math lab director is needed but has not yet been hired.

As it relates to staff support, a QEP Administrative Assistant, as well as a Faculty Development Specialist was proposed in the plan. The Administrative Assistant has been hired, but the Faculty Development position has been delayed due to limited financial resources.

A total of twenty four student workers were requested to be distributed equally between the departments of English and Math, but due to limited financial resources only one work-study student has been acquired to work in the QEP Reading and Writing lab during the academic year.

In summary, from a hiring perspective, as resources become available it is hoped that all of the personnel requested in the QEP proposal will be added.

### Support Resources

A major challenge at the beginning of the academic year was locating space where the QEP Reading and Writing labs could be set up. Toward the end of October, space was located in 115 Hubbard Education Building. Equipping the room with computers and relevant software continues to be a work in progress, but having space should be an advantage moving forward. Being in a position to hire staff and student support personnel will hopefully assist in improving lab efficiency and student classroom performance.

## 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 also be made among faculty to enhance pedagogy. To that end, during the spring 2011 semester, QEP collaborated with faculty from the College of Education to offer bi-weekly ***faculty development training sessions***. The following is a list of topics which were covered:

- Using contextual learning to enhance students' critical thinking skills
- The role of problem-based learning in enhancing critical thinking skills
- Enhancing critical thinking by considering multiple intelligences in instructional design and delivery
- Writing-to-learn as a strategy for developing critical thinking across the curriculum
- Integrative learning as a strategy for enhancing critical thinking
- Engaging and infusing students in the classroom: Goals and strategies
- Using adventure-based activities to generate critical thinking

Each facilitator received a certificate of appreciation for their service and each attendee received a certificate of participation.

In the broader context of enhancing and highlighting a campus atmosphere of critical thinking at FVSU, the office of the QEP hosted the inaugural ***Research Day*** on April 19, 2011. This was a poster presentations event in which a total of thirty four faculty and student researchers prepared posters and engaged with attendees to explain their research. Students who participated in this event demonstrated outstanding critical thinking skills in their ability to collect, analyze, and explain their data. A proceedings booklet was prepared with names of each researcher and the nature of their research. This event was a resounding success and gave evidence to the many contributions the FVSU academic community is making to its own as well as the broader community.

***Critical Thinking Day*** was planned by the QEP office to heighten awareness of our ECT efforts. A special ceremony was held on March 31, 2011 to recognize and encourage students who were nominated by their professors for showing outstanding evidence of critical thinking in completing their class assignments. All faculty who are known to be implementing critical thinking pedagogy were also recognized, some received special recognitions. Twelve faculty and fifteen students were honored.

In order to reward faculty for their efforts in implementing ECT strategies, the QEP office submitted two separate ***journal articles***, one bearing the names of all faculty in the Department of English and Foreign Languages, and one bearing the names of all Math faculty who have been involved in the ECT effort. Additionally, faculty are being encouraged to use their ECT involvement as an opportunity for action research and for submitting their own journal articles.

# ASSESSMENTS

There are two assessment methods 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 administered through the Office of Institutional Research. The second is an *internal evaluation* which is based on specific reasoning strategies and which has been developed by FVSU faculty and is administered toward the beginning and end of each semester.

## *CAAP RESULTS*

There are 32 items on the critical thinking subsection of the CAAP exam. As part of FVSU's Georgia Board of Regents core curriculum standard, the decision was made by a subcommittee of the curriculum committee to allow a score of at least 17/32 (53%) to be considered acceptable on the critical thinking subsection of the CAPP exam.

### *Fall 2010*

A total of 97 FVSU students took the CAAP exam during fall 2010 semester. Only nine students (9%) scored less than 53%. The lowest score was 47 and the highest was 70 on the critical thinking subsection. The averaged score was 58.29%.

### *Spring 2011*

A total of 132 students took the CAAP exam in during spring 2011 semester, however 131 attempted the critical thinking subsection. There were 22 students (17%) who scored less than 53% and scores ranged from 46 being the lowest to 68 the highest. The average score was 57.15%. Table 1 summarizes CAAP results for the 2010 – 2011 academic year.

| Criteria | Fall 2010 | Spring 2011 |
|---|---|---|
| No. of students tested | 97 | 131 |
| No. of Scores <53 | 9 (9%) | 22 (17%) |
| Score Range | 47 – 70 | 46 – 68 |
| Average Score | 58.29% | 57.15% |

**Table 1**

## *INTERNAL EVALUATION*

The internal evaluation used to assess students' critical thinking skills is developed based on a model of specific reasoning strategies. The following is a list of the reasoning strategies implemented in each department:

### *English*

- Inductive reasoning
- Deductive reasoning

- Comparative reasoning
- Abductive resoning
- Analogical reasoning

*Math*

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

English and Math faculty who taught QEP/ECT courses were trained during summer 2010, on how to implement the reasoning strategies. They also contributed to the development of the modules which were used in their courses. This meant that faculty in all QEP/ ECT courses were likely to cover similar topics and give similar types of assignments. In addition to course sections which were designated as QEP/ ECT in each department, there were also cohort sections which were non-QEP/ ECT. This provided a mechanism to compare the impact of the QEP/ ECT intervention versus non-QEP/ ECT. This report is therefore a summary of the results of what was found by examining pre and post tests results in QEP/ ECT sections, and then examining them in comparison with non-QEP/ ECT sections for fall 2010 and spring 2011 semesters.

## Methodology

Permission was sought and granted by the Institutional Research Committee at FVSU to allow the QEP office to conduct the study. Students were selected by being enrolled in the courses. There was no predetermined designation of which students would be in QEP/ ECT sections versus non-QEP/ ECT sections. Students voluntarily participated in the study and were asked by their professors to complete a consent form before completing the pre/ post tests. In both ECT and non-ECT course sections students were given a pretest at the beginning of the semester to provide benchmark data about their critical thinking (reasoning) skills. The same tests were given as posttests at the end of the semester to compare differences in scores and to examine the impact of ECT interventions during the semester. 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 average pre and posttest average scores of students in QEP/ ECT versus non-QEP/ ECT English 1101 and 1102 courses?

2. Are there overall statistically significant differences in pre and posttest scores in QEP/ ECT English 1101 and 1102 courses at the .05 alpha level?
3. What is the difference in average pre and posttest average scores of students in QEP/ ECT versus non-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 1101 and 1102, and QEP/ ECT Math 1111 and 1113 courses.

### *ENGLISH*

**Question 1***:* What is the difference in average pre and posttest average scores of students in QEP/ ECT versus non-QEP/ ECT English 1101 and 1102 courses?

### *Fall 2010*

There were 99 students who took the pre and post tests in QEP/ ECT English 1101 classes. The pretest average score was 76%. In non-QEP/ ECT English 1101, there were 133 students who took the pre and post tests, and their average score was 73.5%. In QEP/ ECT English 1102, there were 41 students who took the pre and post tests, and their pretest average score was 75%, while in non-QEP/ ECT English 1102, there were 93 students who took the pre and post tests, and their pretest average score was slightly higher than in QEP/ ECT sections, 75.41%. These results indicate that students in QEP/ ECT and non-QEP/ ECT English 1102 were relatively similar in their critical thinking aptitude when they began the semester.

In QEP/ ECT English 1101, the average posttest score was 78.62%, which was an improvement over the pretest average of 76%. In non-QEP/ ECT English 1101, the average posttest score was 75.84%, which again was an improvement over the pretest average of 73.5%. However, average scores in non-QEP/ ECT English 1101 were lower than those in QEP/ECT sections on both pretest and posttest.

In QEP/ ECT English 1102, the average posttest score was 80.2%, which is a strong improvement over the pretest average of 75%. In non-QEP/ ECT English 1102, the average posttest score was 77.38%, which was a medium improvement over the pretest average of 75.41%. The following table summarizes the results from QEP/ ECT and non-QEP/ ECT English classes:

| Test Type | QEP Eng-1101 | Non-QEP Eng-1101 | QEP Eng-1102 | Non-QEP Eng-1102 |
|---|---|---|---|---|
| Pretest | 76% | 73.5% | 75% | 75.41% |
| Posttest | 78.62% | 75.84% | 80.2% | 77.38% |

**Table 2**

**Question 2:** Are there overall statistically significant differences in pre and posttest scores QEP/ ECT English 1101 and 1102 courses at the .05 alpha level?

- ***English 1101***

A t-test was done to compare pretest and posttest scores in QEP/ ECT English 1101. Table 3 shows that standard deviation was 9.75, which means that scores were generally centered close to the mean. The calculated *t* value was .28, and degrees of freedom were 98. A two tailed test was done at *.025* alpha level (.05/2). The critical value as shown was 1.66, and *P* = .0049. The small *P* value is an indication that the intervention during the semester was effective. The purpose of the two-tailed test is to compare mean scores of $mu_1$ (pretest), and $mu_2$ (posttest). The results received in this study was an indication that there was a statistically significant difference between students' pretest and posttest scores in QEP/ ECT English 1101 course sections. At the .05 (α = .05) level when a one tail test was done, it was found that *P* = .0025 and the critical value was 1.98. Again this small *P* value indicated that the intervention was effective and a statistically significant difference was found between students' pretest and posttest scores in QEP/ ECT English 1101 course sections.

| | | |
|---|---|---|
| Observations | 99.00 | |
| Mean Scores | 78.62 (posttest) | 75.74 (pretest) |
| df | (n-1)=99-1=98 | |
| Standard Deviation | 9.75 | |
| P(T<=t) One tail | 0.0025 | |
| t Critical one-tail | 1.98 | |
| P(T<=t) Two tail | 0.0049 | |
| t Critical two-tail | 1.66 | |
| ttest | 0.28 | |

**Table 3**

- ***English 1102***

Another t-test was done to compare pretest and posttest scores in QEP/ ECT English 1102. Standard deviation results showed that scores were not as closely clustered to the mean. The calculated *t* value as shown in table 4 was .44, and degrees of freedom were 40. At *.025* alpha level, the critical value is 1.68, two tailed and *P* = .004. The small *P* value is an indication that the intervention during the semester was effective. The results received in this study was an indication that there was a statistically significant difference between students' pretest and posttest scores in the QEP/ ECT English 1102 course sections. At the .05 (α = .05) level when a one tail test was done, it was found that P = .002, a small value, and the critical value was 2.02. Again this indicated a statistically significant difference between students' pretest and posttest scores in QEP/ ECT English 1102.

| | | |
|---|---|---|
| Observations | 41.00 | |
| Mean Scores | 80.20 | 75.02 |
| df | (n-1)=41-1=40 | |
| Standard Deviation | 11.20 | |
| P(T<=t) One tail | .002 | |
| t Critical one-tail | 2.02 | |
| P(T<=t) Two tail | 0.004 | |
| t Critical two-tail | 1.68 | |
| ttest | 0.44 | |

**Table 4**

### *Spring 2011*

**Question 1***:* What is the difference in average pre and posttest average scores of students in QEP/ ECT versus non-QEP/ ECT English 1101 and 1102 courses?

There were 11 students who took both the pre and post tests in QEP/ ECT English 1101. The pretest average score was 74.09%. In non-QEP/ ECT English 1101, there were only 3 students who took both the pre and post tests, and their average score was 80%. In both cases, results indicate high critical thinking skills, albeit *n* was relatively small, especially in non-QEP/ ECT 1101. In QEP/ ECT English 1102, there were 36 students who took the pre and post tests, and their pretest average score was 76.28%, while in non-QEP/ ECT English 1102, there were 82 students who took the pre and post tests, and their pretest average score was 73.29%. These results indicate that students in QEP/ECT and non-QEP/ECT English 1102 began the semester with reasonably good critical thinking scores.

In QEP/ ECT English 1101, the average posttest score was 73.18%, which was slightly lower than the pretest average of 74.09%. In non-QEP/ ECT English 1101, the average posttest score was 80.42%, which was a rather slight improvement over the pretest average of 80%.

In QEP/ ECT English 1102, the average posttest score was 80.83%, which was a improvement over the pretest average of 76.28%. In non-QEP/ ECT English 1102, the average posttest score was 77.57%, which was also an improvement over the pretest average of 73.29%. The following table summarizes the results from QEP/ ECT and non-QEP/ ECT English classes:

| Test Type | QEP Eng-1101 | Non-QEP Eng-1101 | QEP Eng-1102 | Non-QEP Eng-1102 |
|---|---|---|---|---|
| Pretest | 74.09% | 80% | 76.28% | 73.29% |
| Posttest | 73.18% | 80.42% | 80.83% | 77.57% |

**Table 5**

**Question 2:** Are there overall statistically significant differences in pre and posttest scores in QEP/ ECT English 1101 and 1102 courses at the .05 alpha level?

- ***English 1101***

A t-test was done to compare pretest and posttest scores in QEP/ ECT English 1101. Table 6 shows that standard deviation was 8.58, which indicates that scores were generally centered close to the mean. The calculated *t* value was -.08, and degrees of freedom were 10. A two tailed test was done at *.025* alpha level (.05/2). The critical value as shown was 2.23, and *P* = .80. This large *P* value is an indication that the intervention during the semester was not effective. The purpose of the two-tailed test is to compare mean scores of $mu_1$ (pretest), and $mu_2$ (posttest). The results were an indication that there was no statistically significant difference between students' pretest and posttest scores in the QEP/ ECT English 1101 during spring 2011 semester. At the .05 (α = .05) level when a one tail test was done, it was found that *P* = .40 and the critical value was 1.81. This large *P* value is again an indication that the intervention during the semester was not effective, and again this indicated no statistically significant differences between students' pretest and posttest scores in QEP/ ECT English 1101 during spring 2011 semester.

| | | |
|---|---|---|
| Observations | 11.00 | |
| Mean Scores | 73.18 (posttest) | 74.09 (pretest) |
| df | (n-1)=11-1=10 | |
| Standard Deviation | 8.58 | |
| P(T<=t) One tail | 0.40 | |
| t Critical one-tail | 1.81 | |
| P(T<=t) Two tail | 0.80 | |
| t Critical two-tail | 2.23 | |
| ttest | -0.08 | |

**Table 6**

- ***English 1102***

Another t-test was done to compare pretest and posttest scores in QEP/ ECT English 1102. Standard deviation results showed that scores were not as closely clustered to the mean. The calculated *t* value as shown in table 7 was .40, and degrees of freedom were 35. At *.025* alpha level, the critical value was 2.03, two tailed and *P* = .02. The results received in this study was indicated from the small *P* value that the intervention during the semester was effective, and that there were statistically significant differences between students' pretest and posttest scores in the QEP English 1102 course sections. At the .05 (α = .05) level when a one tail test was done, it was found that *P* = .01, a small value, and the critical value was 1.69. Again this indicated a statistically significant difference between students' pretest and posttest scores in QEP English 1102.

| | | |
|---|---|---|
| Observations | 36.00 | |
| Mean Scores | 80.83 | 76.28 |
| df | (n-1)=36-1=35 | |
| Standard Deviation | 11.85 | |
| P(T<=t) One tail | 0.01 | |
| t Critical one-tail | 1.69 | |
| P(T<=t) Two tail | 0.02 | |
| t Critical two-tail | 2.03 | |
| ttest | 0.40 | |

**Table 7**

### *MATH*

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

### *Fall 2010*

In ECT Math 1111 there were 87 students who took the pre and post tests. The average pretest score was 53.72%. There was only one section of non-ECT Math 1111, and there were 23 students who took the pre and post tests in that section. Their average pretest score was 51.22%. These results indicate that students in the ECT section were at a slightly higher critical thinking level at the beginning of the semester than students in the non-ECT section.

In ECT Math 1113, there were 37 students who took the pre and post tests. Their average pretest score was 61.22%. There were no non-ECT Math 1113 sections with which to compare results.

The combined average posttest score in ECT Math 1111 was 70.71%, which was a significant improvement over the pretest score of 53.72%. In non-ECT Math 1111, the posttest average score was 60.43%. This was an improvement over the pretest (51.22%), but not as significant as in the ECT Math 1111 courses. In ECT Math 1113, the average posttest score was 76.22%, which was a significant improvement over their pretest score (61.22%). Table 1 summarizes these results which seem to indicate that utilizing reasoning strategies in math courses had a major impact on student performance

Since there was only one section of non-ECT Math 1111, the averages shown above (pretest 51.22%, and posttest 60.43%) are from that one section. However, because these results were used to compare with all the ECT Math 1111 sections taught by multiple professors, the results could have been affected by differences in teaching styles between professors. Therefore, it was important to compare the one non-ECT Math 1111 results only with the ECT Math 1111 sections with which there was a common professor who taught them both. There were 28 students who took the pre and post test in the ECT Math 1111 sections taught by that one professor. Pretest average scores for students in those sections were 53.18%. This score is very close to the combined ECT Math 1111 average of 53.72% and slightly higher than the non-ECT Math 1111 section (51.22%). The posttest average scores in ECT Math 1111 for this professor was 63.5%,

which was much lower than the combined ECT Math 1111 average posttest score of 70.71%, but still an improvement over all the pretest average scores.

The following table summarizes average scores from all ECT and non-ECT Math classes combined:

| Test Type | ECT Math-1111 | Non-ECT Math-1111 | ECTMath-1113 |
|---|---|---|---|
| Pretest | 53.72% | 51.22% | 61.22% |
| Posttest | 70.71% | 60.43% | 76.22% |

**Table 8**

Table 9 summarizes average scores from ECT and non-ECT Math 1111 courses taught by the same professor:

| Test Type | ECT Math-1111 | Non-ECT Math-1111 |
|---|---|---|
| Pretest | 53.72% | 53.18% |
| Posttest | 70.71% | 63.5% |

**Table 9**

Table 9 results seem to reiterate the success of the reasoning strategies in improving student performance. In the non-ECT course where reasoning strategies were not utilized, scores were lower even though the course was taught by the same professor.

**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***

Once again another t-test was calculated to compare pretest and posttest scores in QEP Math 1111. Standard deviation results indicated that scores were scattered and not clustered closely to the mean. The calculated *t* value as shown in table 10 is .655, and the degrees of freedom are 86. At *.025* alpha level, the critical value is 1.98, two tailed and $P = 0.00$. The small *P* value is an indication that the intervention during the semester was effective. The results received in this study was an indication that there was a statistically significant difference between students' pretest and posttest scores in QEP Math 1111 course sections. At the .05 ($\alpha = .05$) level when a one tail test was done, it was found that $P = 0.00$, a small value, and the critical value was 1.66. Again this indicated a statistically significant difference between students' pretest and posttest scores in QEP Math 1111.

| | | |
|---|---|---|
| Observations | 87.00 | |
| Mean Scores | 70.76 | 53.72 |
| df | (n-1)=87-1=86 | |
| Standard Deviation | 19.90 | |
| P(T<=t) One tail | 0.00 | |
| t Critical one-tail | 1.66 | |
| P(T<=t) Two tail | 0.00 | |
| t Critical two-tail | 1.98 | |
| ttest | 0.655 | |

**Table 10**

- ***Math 1113***

A final t-test was calculated to compare pretest and posttest scores in QEP Math 1113. Standard deviation results indicated that scores were very scattered and not clustered closely to the mean. The calculated *t* value as shown in table 11 was .655, and degrees of freedom were 36. At *.025* alpha level, the critical value is 2.03, two tailed and *P* = 0.00. The small *P* value is an indication that the intervention during the semester was effective. The results received in this study was an indication that there was a statistically significant difference between students' pretest and posttest scores in QEP Math 1113 course sections. At the .05 ($\alpha = .05$) level when a one tail test was done, it was found that *P* = 0.00, a small value, and the critical value was 1.69. Again this indicated a statistically significant difference between students' pretest and posttest scores in QEP Math 1113.

| | | |
|---|---|---|
| Observations | 37.00 | |
| Mean Scores | 76.22 | 61.22 |
| df | (n-1)=37-1=36 | |
| Standard Deviation | 20.77 | |
| P(T<=t) One tail | 0.00 | |
| t Critical one-tail | 1.69 | |
| P(T<=t) Two tail | 0.00 | |
| t Critical two-tail | 2.03 | |
| ttest | 0.655 | |

**Table 11**

## *Spring 2011*

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

In ECT Math 1111 there were 54 students who took the pre and post tests. The average pretest score was 54.44%. There was only one section of non-ECT Math 1111, and there were 20 students who took the pre and post tests in that section. Their average pretest score was 62%. These results indicate that students in the non-ECT section were at a slightly higher critical thinking level at the beginning of the semester than students in the ECT section.

In ECT Math 1113, there were 39 students who took the pre and post tests. Their average pretest score was 47.95%. In non-ECT Math 1113, and there were 34 students who took the pre and post tests. Their average pretest score was 43.82%. These results indicate that students in the non-ECT section were at a slightly lower critical thinking level at the beginning of the semester than students in the ECT section. However, students in both sections scored rather low.

The combined average posttest score in ECT Math 1111 was 75.46%, which was a significant improvement over the pretest score of 54.44%. In non-ECT Math 1111, the posttest average score was 75%. This was also an improvement over the pretest (62%) but not as significant an increase as in the ECT Math 1111 courses where scores were lower from the very beginning. In ECT Math 1113, the average posttest score was 73.59%, which was a significant improvement over their pretest score (47.95%). In non-ECT Math 1113 the average posttest score was 70%. Again this was a significant improvement over the pretest average (43.82%). Table 10 summarizes these results which seem to indicate that utilizing reasoning strategies in math courses had a major impact on student performance.

The following table summarizes average scores from all ECT and non-ECT Math classes combined:

| Test Type | ECT Math-1111 | Non-ECT Math-1111 | ECTMath-1113 | Non-ECTMath-1113 |
|---|---|---|---|---|
| Pretest | 54.44% | 62% | 47.95% | 43.82% |
| Posttest | 75.46% | 75% | 73.59% | 70% |

**Table 12**

**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***

A t-test was calculated to compare pretest and posttest scores in QEP/ ECT Math 1111. Standard deviation results indicated that scores were scattered and not clustered closely to the mean. The calculated *t* value as shown in table 13 is .79, and degrees of freedom were 53. At *.025* alpha level, the critical value is 1.67, two tailed and $P = 0.00$. The small *P* value is an indication that the intervention during the semester was effective. The results received in this study was an indication that there was a statistically significant difference between students' pretest and posttest scores in QEP/ ECT Math 1111 course sections. At the .05 ($\alpha = .05$) level when a one tail test was done, it was found that $P = 0.00$, a small value, and the critical value was 2.01. Again this indicated a statistically significant difference between students' pretest and posttest scores in QEP/ ECT Math 1111 during spring 2011 semester.

| | | |
|---|---|---|
| Observations | 54.00 | |
| Mean Scores | (Post) 75.46 | (Pre) 54.44 |
| df | (n-1)=54-1=53 | |
| Standard Deviation | 19.46 | |
| P(T<=t) One tail | 0.00 | |
| t Critical one-tail | 2.01 | |
| P(T<=t) Two tail | 0.00 | |
| t Critical two-tail | 1.67 | |
| ttest | 0.79 | |

**Table 13**

- ***Math 1113***

A final t-test was calculated to compare pretest and posttest scores in QEP/ ECT Math 1113. Standard deviation results indicated that scores were very scattered and not clustered closely to the mean. The calculated *t* value as shown in table 14 was .30, and degrees of freedom were 38. At *.025* alpha level, the critical value is 1.69, two tailed and *P* = 0.06. The slightly high *P* value calls into question the effectiveness of the intervention during the semester. This result indicated that there were no statistically significant differences between students' pretest and posttest scores in QEP/ ECT Math 1113 course sections during spring 2011 semester. A slightly different result was received at the .05 ($\alpha = .05$) level when a one tail test was done. It was found that *P* = 0.03, a smaller value, and the critical value was 2.02. However, since *t*=.30, which is > .05, it must again be concluded that there was no statistically significant differences between students' pretest and posttest scores in QEP/ ECT Math 1113 course sections during spring 2011 semester.

| | | |
|---|---|---|
| Observations | 39.00 | |
| Mean Scores | 73.59 | 47.95 |
| df | (n-1)=39-1=38 | |
| Standard Deviation | 59.47 | |
| P(T<=t) One tail | 0.03 | |
| t Critical one-tail | 2.02 | |
| P(T<=t) Two tail | 0.06 | |
| t Critical two-tail | 1.69 | |
| ttest | 0.30 | |

**Table 14**

## Summary of Internal Evaluation Results

There were only two cases where the intervention by faculty during the semester did not indicate statistical significance. Those two cases were in spring 2011 English 1101, and spring 2011 Math 1113. In all other cases the results suggests that average scores are higher in ECT versus non-ECT courses, that posttest scores are statistically higher than pretest scores in ECT courses, and that overall student performance is higher in QEP/ECT courses than in non-QEP/ ECT courses. As always, there are extenuating variables which are difficult to account for and which could influence apparent results. Such variables might include differences in times when courses are offered and the impact of that on student performance, differences in teacher attitudes between

sections, and difference in student motivation, among other things. Another important variable was, during the 2010 – 2011 academic year, it was known that ECT course sections were being studied, and intentional strategies were implemented in those sections to affect student performance. Students may have responded more positively to those efforts. In any case, the initial results are encouraging and should be helpful as further study is conducted.

## SUMMER 2011 FACULTY TRAINING

During summer 2011, faculty from the departments of Biology, English, and Math will once again be participating in separate training and course redesign sessions. Returning and new faculty to the ECT program will collaborate to align their course content with the reasoning strategies. They will develop lesson modules, which will include assignments and assessments, and will build rubrics to attempt to standardize the evaluation of their assessments. Faculty will receive a stipend after the training and satisfactory completion of all expected deliverables.

## FUTURE PLANS

The effort which was made to implement the QEP at FVSU should be applauded. Initial results are beginning to highlight the wisdom of the QEP committee's foundational work. As implementation of QEP spreads across the curriculum, its impact on student learning and preparedness will be realized for years to come. After one academic year of observations, the following adjustments may need to be considered:

- Broaden the use of the reasoning strategies and use them as the compass which guides course redesign. This would make it easier to measure and show tangible proof of how critical thinking is being measured.
- Remove labeling courses QEP/ ECT since this may present an unwarranted stigma from students. The preference is to train faculty in implementing ECT strategies and consider courses taught by such trained faculty to be QEP/ ECT sections.
- Provide more faculty training and partner with departments to offer training which may be specific to them.
- Improve incentives and accountability procedures for faculty who implement ECT strategies.
- Promote and expand on the use of research and as a means of enhancing critical thinking.
- Create greater campus awareness by broadening the number of honorees at *Critical Thinking Day*.
- Create a QEP website.

## Conclusion

It has only been one year since the QEP/ ECT program has been fully implemented at FVSU, and evidence of its possible future impact can already be seen. Once resources which were proposed are designated and critical thinking is embedded into the culture of teaching and

learning at the institution, the potential for the QEP at FVSU is unimaginable. Most importantly, the impact on student performance can be enormous.