**The Evaluation of Seminole County Environmental Science Course Strategy**

Melissa B Suit UIN: 814785413

Submitted: December 9, 2016

EME 6607: Instructional Program Analysis

Instructor: Dr. Robert Triscari

College of Education

Florida Gulf Coast University

**Introduction:**

In Florida, high school students used to take the FCAT for science in 11th grade. When states started changing their standards with the introduction of the Next Generation Standards, Florida changed how testing worked for all classes. In 2010-2011 all students took FCAT Science in 11th grade, but Florida field tested FCAT 2.0 and an End-of-Course (EOC) exam in Biology. In 2011-2012 all high school students took an EOC exam in Biology to establish a baseline for data comparison. The actual EOC exam for Biology launched in 2012-2013 and has been in place since. (FLDOE, 2014).

The EOC Assessments are intended to measure either Florida standards or Next Generation Sunshine State Standards at the end of the year. Essentially it allows the state to compare how all the students in Florida are doing in a particular subject. In addition to allowing the state to compare students the EOC exam has a serious impact on students. The EOC exam is a mandatory 30% of the student’s grade for the course, and while it will not stop them from passing a course their score can prevent them from graduating (FLDOE End, 2016).

Seminole County administration in several schools had concerns for how their low level students would do on the EOC exam in biology. This was based on previous test scores from middle school standardized testing. The decision was made to create an addition course for students to take in 9th grade so that they would not take the Biology EOC exam until 10th grade.

Our client is the Seminole County School Board. They are interested in the effectiveness of the environmental science class in improving students EOC exam scores in Biology. According to the county the environmental science class is designed to “strengthen student’s skills in the areas of academic performance, learning strategies and critical thinking” (Lake 2016). The environmental science course students take in 9th grade is intended to prepare them for success in 10th grade biology. Students are not allowed to enroll themselves in this course, but instead are placed there by administrators based on middle school grades and standardized reading test scores.

**Evaluation Question**

There are many different questions that could be the focus of this evaluation. The evaluator suggests focusing on “Does taking an extra year to cover 40% of the content covered on the Biology EOC exam raise students test scores?” with the possible extension of looking at “How does this extra year benefit students with disabilities and English Language Learners?” The second question will possibly be difficult to answer due to the challenges of working with these specific student groups. English Language Learners tend to make large changes in their academics as their mastery of the English language increases. Students with disabilities academic progress is greatly affected by their teacher, support facilitation, and other outside influences.

**Evaluation Team**

In addition to the evaluator assigned to this project the suggested composition of the evaluation team is: one teacher and one administrator from each of the three schools offering environmental science. A member of the school board should also be asked to participate to help coordinate information flow along with asking the county Science Coordinator to help access and analyze the test data. Two additional suggestions for the evaluator to consider as part of the evaluation team are an ESE Facilitator and the ESOL Assistant for each school. These additional members would bring another, more focused, perspective of the student data being evaluated.

**Significance of the Study and Limitations**

The significance of this study is to see if what was implemented several years ago is having the desired effect. Are students EOC test scores benefiting from an additional year of content exposure and skill development. The main limitation to this study is that it is not possible to test the same students twice to obtain comparison data. Environmental science students do not take a practice Biology EOC exam to collect data from. This means that the data comparison for Biology EOC exam scores will be between 9th grade students, who had a high enough reading test score and grades that administration felt they would be successful, and 10th grade students who received an extra year. Something that can be used to help determine how the 9th grade environmental students compare to the 9th grade biology students is the Discovery Education testing that the county has implemented. This test is developed for biology students that are currently taking the course and covers content they have been taught over a nine week semester. The 9th grade environmental students take the Discovery Education test and then take it again in 10th grade when they are taking the biology course.

**Fidelity of Implementation**

According to Webster dictionary fidelity is the degree of exactness with which something is copied or reproduced. From an evaluators perspective it is how consistent the data and analysis is. With this understanding fidelity is measured according to five points: adherence, quality of delivery, participant responsiveness, exposure, and program differentiation (James, 2009). Adherence in this evaluation will be based on the instructors teaching the exact standards and content mentioned in the courses Instructional Plan (IP) within the time frame allotted. Quality of delivery will be observed and documented during the evaluators observations of the classrooms. Documentation will focus on use of effective teaching methods, preparedness of students and teacher for course, and lesson activities to gauge engagement. Participant responsiveness will also be observed during the evaluator’s observations and documented. Evaluator will be looking for student participation in class and with work. Exposure will be measured in a teacher survey question asking them if they feel student had enough time with the content and if they were able to keep pace with the IP. Program differentiation will be compared between the three schools to see if there is a difference in approach that teachers and students are taking to the content.

**Design Section of the Evaluation**

The evaluation will be conducted over the course of two years, though the total time of actual work should be approximately two to six months. It is suggested that the evaluation be conducted in two parts. The first part is to collect qualitative data from the students and teachers through observations and surveys. The second part is to analyze test data.

It is suggested for the qualitative data section that the evaluator observe all teachers involved in environmental science and 9th/10th grade biology each nine weeks to make notes of possible different teaching styles that may affect test scores. The first part involves collecting data from current students to help determine possible limitations in the comparison of 9th grade biology and 10th grade biology students. The suggestion for when to conduct the surveys would be at the beginning of the third nine weeks and then again after the Biology EOC exam. Conducting one survey at the beginning of the third nine weeks would allow time for students to take two Discovery Education tests and begin to formulate their opinion about their preparedness for the Biology EOC exam. Administrating a second survey after the Biology EOC exam will allow students to reflect if they felt fully prepared for the test. A rank survey of all the teachers and students involved would allow for the collection of information about their personal opinions on their preparedness and basic background information. From these surveys the evaluator could choose at random some students and teachers to do personal interviews with to collect more detailed information. It is important when determining the time frame for survey administration that enough time is given for the students and teachers to complete them with the additional understanding that the surveys need to be short as to not greatly effect instructional time.

The second part of the evaluation would be the analysis of data. The data being analyzed should not only be for the current 9th and 10th grade students but also for all students in previous years that data has been collected. This will provide a more accurate accounting of the effectiveness of the environmental science course in preparing students.

**Matching Section**

This evaluation will utilize a matching of students. Each of the current 10th grade Biology students will be matched with a 9th grade Biology student to compare their results. The students will be matched to each other based on: (a) attends the same school (b) is the same in gender; (c) poverty (free or reduced-price lunch status) and similar ethnicity; and (d) scored similarly in reading on last year’s state assessment (Ross and Potter, 2006). For previous years data, students will also be matched based on the same information through an additional match should be made to help with comparison, which is (e) 9th grade environmental students will be matched to similar 9th grade biology students, then their 10th grade EOC exam will be compared to those 9th grade students.

An additional match could be made between students at different schools to see how their information compares. A limitation to this comparison is that it may be difficult to match ethnicity in some students and the difference of student socioeconomics and its effect. A benefit for making this additional match would be increase statistical power and precision (Ross and Potter, 2006).

**Data Section and Statistical Analysis Section**

The quantitative data to be examined would be the 1st 9 weeks, 2nd 9 weeks, and 3rd nine weeks Discovery Education Test for 9th grade biology, 9th grade environmental science, and 10th grade biology. The reason to examine the 9th grade environmental science student’s discovery education test data is to create a baseline for their 10th grade data to see how much they have grown in the course of a year. It is predicted that the 9th grade environmental science scores will be low as they are not actively taught the content tested, but it will established their background knowledge level. The main comparison for the Discovery Education test should be between the 9th grade biology students and the 10th grade biology students. This allows for a second data point, other than just the EOC exam grade to compare the effectiveness of the environmental science course. The other main set of data to examine is the Biology EOC exam scores. These can be accessed by the county Science Coordinator for all schools involved. The information can also be found on the Florida Department of Education website for previous years, if the Coordinator does not have access (FLDOE 2014-2015, 2016).

The qualitative data to be examined would be the surveys given to the students and teachers about their opinion on preparedness for the Biology EOC exam. The surveys should have been given to 9th grade biology, 9th grade environmental science, and 10th grade biology. The form itself would need to have modified questions for the environmental science and 10th grade biology students asking what they taught about the environmental science course. These surveys would then need a type of coding system developed to help interpret them and what they mean to the overall comparison. The second form of qualitative data would be the field notes taken by the evaluator when classroom observations were done. These again will need a type of coding system developed to help interpret them and what they mean to the overall comparison.

**Resources:**

Lake Brantley High School 2016 Curriculum Guide. <https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0ahUKEwjiyoDl2tvQAhVB5yYKHZl8ANAQFggdMAA&url=http%3A%2F%2Fwww.lakebrantley.com%2FGuidance%2FGUIDANCEAH%2FCURRICULUM%2FCurriculumGuide.aspx&usg=AFQjCNH02t4t5-AshE5JuKiVypdV-RCdig&sig2=tPhL7VQ31S71iSPfpWIi8g&cad=rja>

Florida Department of Education. 2016. End of Course (EOC exam) Assessments. <http://www.fldoe.org/accountability/assessments/k-12-student-assessment/end-of-course-eoc-assessments/index.stml>

Florida Department of Education. 2016. 2014-2015 Florida End-of-Course (EOC exam) Assessment. [http://fcat.fldoe.org/resultsEOC exam/default.asp](http://fcat.fldoe.org/resultsEOC/default.asp)

Florida Department of Education. 2014. Transition to Next Generation and Computer-Based Tests in Florida (2011-2014). PDF. <http://www.fldoe.org/core/fileparse.php/5662/urlt/0095796-tngcbtf.pdf>

Ross, S.M. and A. Potter. 2006. Evaluating Supplemental Educational Service Providers: Suggested Strategies for States. <https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=2&ved=0ahUKEwihoOra-tvQAhUETSYKHal1Af4QFgglMAE&url=http%3A%2F%2Fwww.memphis.edu%2Fcrep%2Fpdfs%2Fses_evaluation_guide.pdf&usg=AFQjCNHqJTOOdL9s5zAy5zFInifwriMo6g&sig2=iyRPzvcRjb2Az8QfUTLOUQ&cad=rja>

James Bell Associates. 2009.  Evaluation Brief: Measuring Implementation Fidelity. <https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0ahUKEwj25MT3lNzQAhUGRSYKHfnRBt4QFggiMAA&url=http%3A%2F%2Fwww.jbassoc.com%2FReportsPublications%2FEvaluation%2520Brief%2520-%2520Measuring%2520Implementation%2520Fidelity_Octob%25E2%2580%25A6.pdf&usg=AFQjCNHBWusyYnrmHmoOs5apvjHpsaiM0g&sig2=iEdvyGQ7U-xpwaSeQH-PAg&cad=rja>