SpringBoard Program Evaluation: Addendum to Methodology

Consultant Company: CRAnalysis, Inc.
Consultant: Gail A. Patterson, Ph.D.

Prepared For:

Alison Adler, Ed.D.
Chief of Safety and Learning Environment
The School District of Palm Beach County
Palm Beach County, FL

Addendum Two: 01/25/06

F. Data, Analysis Methods, and Outcome Measures

This section provides documentation on the *SpringBoard Program Evaluation* (SB), as well as the analysis methods to be used to process and summarize the data. This section is organized as follows:

- *The Progress Report* – presents information on the goals and objectives of the project and provides eight data elements that assess the SB, to determine if the program is on track to meet the goals and objectives stated in the Grant.
- *The SB Evaluation* – presents the school sites and additional information about students and schools who are participating in the study. Explains the multiple samples and includes two tables: TABLE 1 - Student Sample Per Grade Level and TABLE 2 - Defining Student Sub-Groups.
- *The Research Design* – presents in detail the design of the study and argues the reasonableness of the design to appropriately measure outcome.
- *Data Analysis* – provides an overview of the data processing steps used to prepare the data for analysis, including pre-processing, software packages to be used and the methods that will be employed to explore and compare variables.

Overview

The current methodological report is an addendum to the SB Program Evaluation, dated October 5, 2005. A great deal of methodological information was provided in the identified report; therefore, the current document will reference those sections in order minimize redundancy.

The SB Program began in school year (SY) 2004-05 in the School District of Palm Beach County, Florida. The SB is a focused program that seeks to improve academic achievement (10/05/05 - Program Description – A. Description of Intervention). There are N=1,380 middle and high school students from 19 schools that are participating in the SB three year program. At the conclusion of each school year and beginning in SY 2005-06, a formal and substantive evaluation will be compiled and submitted. In Spring 2006, a Progress Report will be generated in order to assess program implementation and to evaluate the data collection plan.

Progress Report

It is proposed that the Spring progress report include the following from *each of the 19 SB participating schools:* (1) An assessment of the school administration's responsibilities as described in section (10/05/05) E. Program Implementation. (2) An assessment of the school's readiness of methods to track student achievement test scores; (3) an assessment of the readiness of methods to identify and track *level 1 and 2 students*; (4) the actual number of SB strategies completed; (5) the actual number of trainings completed by staff; (6) a report on the progress of the SB efficacy rubric; (7) the actual number of visits the SB specialist has made to each school and; (8) the actual count of the requirements met on the Support and Assistance Rubric (10/05/05 - C. Purpose, Goals and Outcome Objectives of Program).

SB Program Evaluation

A careful examination has been made of the SB program in order to operationalize student and program outcome into appropriate measures. The current methodology follows a reasonable research design that enables appropriate tracking measures. Any changes in the methods would be clearly defined in the annual evaluations. The current study methodology considers both the student sample and the teacher sample by separating the samples in the research design that follows.

Location of the Study

As described N=19 schools are participating in SB; n=4 high schools, n=13 middle schools, one n=1, K-7th grade school and n=1, 7 – 12th grade school (10/05/05 - B. History of the Program within the District). The identified schools were selected using the following criteria: (1) the schools did not meet AYP (NCLBL) for two years; (2) SB filled the need to offer a choice option for the District, and (3) each school's willingness to participate.

The four SB participating high schools include schools graded in the following categories at the conclusion of SY 2004: two *D* and two *C* schools, and in SY 2005: two *C* schools, one *B* and one *D* school. The high schools are similar in the following: the percentage points of meeting the highest standard in reading is low, with a combined average of 20%; with math student scores a combined average of 54%. All four high

schools have 50% or more of the lowest 25% of readers making learning gains. The combined average of minority students, at the four schools, is 90%. The average of low socio-economic status (SES) is: 90% at two schools, 56% and 57% at the other two schools.

In the middle school population and in SY 2004, there was one *A* school, five *B* schools, seven *C* schools and one *D* school. In SY 2005, 14 participating middle schools were graded as: one *A* school, five *B* schools, six *C* schools and 2 *D* schools. Of the fourteen participating middle schools, five had 50% of students meeting the highest standard in reading, with a combined average of 37%. All fourteen middle schools have 50% or more of the lowest 25% of readers making learning gains. Like the participating high school population, the percent of middle schools meeting the highest standard in math was somewhat higher than reading; math scores at eight schools were 50% or higher, the highest being 60%, with a combined average of 42%. Of the 14 schools, the average percent of minority population is 81% and the average low SES is 72%.

The Village Academy is participating in the SB with students in 6th and 7th grade. In both SY 2003/04 and SY 2004/05, the school was graded a *C*. The school scored slightly under 50% on students meeting the highest standards in reading and math scores. The identified school is 95% low SES and 99% of the students are minority status.

The participating school sites in the School District of Palm Beach County, provide data on sub-population groups that the NCLB Act has identified as very often excluded sub-groups: 1) economically disadvantage students, and 2) major racial and ethnic groups (Wenning, Herdman, Smith, 2003). The participating schools provide a focus on raising the achievement level of low-achieving students living in urban low-income areas and suburban middle-income areas (College Board, 1999).

Sample

The Teacher Group Sample and Student Group Samples are purposive in that the schools, teachers and students were selected based on specific criteria and were not randomly selected (10/05/05 - See A. Description of Intervention). There are four student samples, two experimental and two control groups, with multiple levels and one teacher sample, with multiple levels. Both Teacher and Student populations require independent methods in order to evaluate the specific goals and objectives of both groups.

Student Sample

The total student participation in the experimental group is: n=1,380; n=1,012 middle school students and, n=368 high school students. The experimental students are known as **GROUP 1**. The control group includes, n=1,000 (approximate number) students and is identified as **GROUP 2.** The total study number is projected to be, **N=2,380**.

GROUP 1 students are comprised of the larger group of students that chose the *Choice Option*. **GROUP 1** will be compared to **GROUP 2.** Both groups will be selected from the participating schools. **GROUP 2** students will be selected based on their similarity to **GROUP 1** students, except they did not receive the treatment (SB programming).

Student **GROUP 1** includes a *nested group* that is comprised of those students who scored *level 1 or level 2* on FY05 FCAT (N to be determined). The nested group is identified as **GROUP 3**, and is considered in GOAL 2 and PURPOSE 2 (10/05/05 - C. Purpose, Goals and Outcome Objectives of Program). **GROUP 3** will be compared to a control group, identified as: **GROUP 4. GROUP 4** students will be selected based on their similarity to **GROUP 3** students, except they did not receive the treatment (SB programming).

It is expected that the 19 participating schools will implement the SB program differently. Fidelity of program implementation is expected, common and recognized as a confounding problem in academic research of K – 12 grade schools (see SAMHSA). Therefore, in order to gain a better understanding of *outcome* - student change in relationship to: (1) length of time in the program and, (2) fidelity of program implementation, will be dealt with in the current study.

A criterion will be developed that considers fidelity problems. It is proposed that an assessment tool be developed that identifies participants as having received full or partial programming and considers length of time in the program (Cummins, Goddard, Formica, Cohen & Harding, 2002).

The fidelity variables can be recorded on student PASS (SSAASY) data entry forms (see Data Entry Method in the current study proposal). By assigning *fidelity values,* which represent participation, the data can be disaggregated *without identifying schools*.

TABLE 1 – Student Samples Per Grade Level

Grade Level (n=1,012)
SY 2005/06 *Group Design* *Grade Level End*

MIDDLE SCHOOL STUDENTS			
6TH	n=UNK*	O_1--- X_2---O_2---X_3---O_3---X_4---O_4 –··–··–··–··–··–··–··–··–··–··–··– O_1--- O_2---O_3---O_4	9TH
7TH	n=UNK*	O_1--- X_2---O_2---X_3---O_3---X_4---O_4 –··–··–··–··–··–··–··–··–··–··–··– O_1--- O_2---O_3---O_4	10TH
8TH	n=UNK*	O_1--- X_2---O_2---X_3---O_3---X_4---O_4 –··–··–··–··–··–··–··–··–··–··–··– O_1--- O_2---O_3---O_4	11TH

Grade Level (n=368) *Group Design* *Grade Level End*
SY 2005-06

HIGH SCHOOL STUDENTS			
9TH	n=UNK*	O_1--- X_2---O_2---X_3---O_3---X_4---O_4 –··–··–··–··–··–··–··–··–··–··–··– O_1--- O_2---O_3---O_4	12TH
10TH	n=UNK*	O_1--- X_2---O_2---X_3---O_3 –··–··–··–··–··–··–··–·· O_1--- O_2---O_3	12TH
11TH	n=UNK*	O_1--- X_2---O_2 –··–··–· O_1--- O_2	12TH

Achievement Test Score = O (O_1 = SY2005, O_2 = SY2006, O_3 = SY2007, O_4 = SY2008)
Treatment = X (X_1 = SY2005, X_2 = SY2006, X_3 = SY2007, X_4 = SY2008)
Subscripts = ($_1$ SY2005 - baseline), ($_2$ SY2006), ($_3$ SY2007), ($_4$ SY2008).
UNK Number unknown – To be determined*

As stated, **GROUP 3** is a nested sample, or is derived from **GROUP 1**. **GROUP 3** students will be defined as a separate and unique sample.

TABLE 2 – Defining Student Sub-Groups (N=1,380)

GRADE	GROUP 1	GROUP 3	TOTAL #
6TH	n=unk*	n=unk	n=unk
7TH			
8TH			
9TH	n=unk	n=unk	n=unk
10TH			
11TH			

TABLE 2 demonstrates that n=unk middle and n=unk high school students represent the number that is the lowest 25% (level 1 and 2) students in the

unk - unknown number*

identified schools. **GROUP 3** may be disaggregated by middle school and high school. To disaggregate further (grade level) may produce a number that is too small to be meaningful (due to attrition and small numbers).

Teacher Sample

The total teacher sample number is (N= 90); n=45 math teachers and n=45 language arts teachers (117 teachers have been trained). The teachers fall into two groups: (1) high school and, (2) middle school. The teacher sample will be disaggregated by grade level and teachers of level 1 and 2 students for the formal evaluation and may be further disaggregated to understand and explain findings.

Research Design

The overall study is a mixed method (quantitative and qualitative) and multi-level (mixed effect) methodology. That is, both quantitative and qualitative methods will be used to analyze data. The study is longitudinal, in that four years of student data will be compiled and analyzed.

School year SY 2004-05 is identified as the baseline for student achievement test scores, allowing for four years of comparison test scores. All four-student groups (N=2,380) will have their achievement test scores compared over multiple years.

The student study can be described as a quasi-experimental, control group design with pretest and posttest, treatment and control, simple interrupted time series design. The current research design proposes that all participating SB Program participants are included in the study, that is, a total population study. The design provides for a higher number of students and allows further analysis of gender and race/ethnicity.

The identified student samples will employ quantitative methods, in order to compare multiple samples of student achievement test scores. However, the teacher ratings and evaluation of acquired knowledge will be better understood through utilizing anecdotal comments and observation, which calls for a qualitative method to be used. The teacher data will also require quantitative (descriptive statistics) methods to tally reports.

Moreover, student attrition is always a consideration in data analysis; therefore, because of anticipated attrition and multiple disaggregation of student data, one or more

student groups may be a small number. The smaller the number in any given student group the lower the statistical importance of the findings (to threshold). Moreover, the data collection methods are in place at the District to build a database for a total population of SB participating students.

By utilizing ***SSAASY Software*** capabilities, SB student data can be collected and imported into the software program *Statistical Package for Social Sciences* (SPSS). The identified software has the capability to disaggregate student data into multiple groups, which will provide a more thorough analysis of the impact of the program.

Data Analysis

The software program, SPSS will be used to manage the large amount of quantitative data. The software program *Atlas.ti* will manage the large amount of qualitative data that teachers are required to chronicle for the Teacher Study.

Data Entry Method

Teachers will be provided with access to a web site and/or LAN site that is available at their schools and at home. The web site(s) will be *teacher friendly* and provide an on-going data collection site for qualitative data (text) and quantitative data. The Teacher sites will be easily accessible and straightforward for easy navigation as teachers collect and input the data. The programs to be used for data input include, but are not limited to: ACCESS, EXCEL and WORD (see Evaluator Recommendations). The identified programs collect data in a format that is easily imported into SPSS and Atlas.ti. The teachers should have access to student data through SSAASY Software, in order to update student records if appropriate.

The data input and collection will be monitored by the evaluator and District staff. At the conclusion of the school year and when the data collection is completed, the evaluator will begin to analyze the data for the annual substantive report.

Atlas.ti will be employed to use a Multi-site Modified Analytic Induction strategy to evaluate teacher description and observation. The notes and writings that are being required of teachers are outlined in the *Picower Foundation Progress Report Form* and under the heading of General Questions**.** In this manner, evolving data will be collected

each year and analyzed, beginning in SY 2005-06. The qualitative research seeks to gain meaning from the every day occurrences in the classroom.

Specifically, teachers will contribute to the following: (1) provide a deeper understanding of teacher sense of self-efficacy in relationship to teaching skills, (2) add to the body of knowledge of academically underachieving adolescents, (3) provide valuable insight into SB Program training and, (4) provide a teachers perspective of the SB Program, implementation and a textual content of program impact.

The quantitative methods seek to compare the following dependent variables, stated in the CLARIFICATION FOR PROPOSAL TO THE PICOWER FOUNDATION: FCAT Reading Scores and FCAT Math Scores.

The comparison of the identified variables will employ descriptive statistics to compare multiple school year data. The level of analysis is interval, as achievement test scores will be compared. Bivariate analysis will be employed to compare test scores, which contain multiple levels, i.e., grade, race/ethnicity, gender, etc. This will provide further understanding of the relationship to and differences between groups within the student population.