Brain Education Program Evaluation Report

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Table of Contents

Introduction 2

Context of study 2

Research Questions 2

Method 2

Results 3

Research Question 1: Differences for students in the treatment group between Time 1 and Time 2 3

Research Question 2: Differences for teachers in the treatment group between Time 1 and Time 2 4

Research Question 3: To what extent are there significant differences between students and teachers in the control and treatment groups? 4

Research Question 4: How do the results of the student and teacher focus groups shape the importance of the brain education program? 5

Discussion 6

References 7

Introduction

This report outlines findings from an evaluation of a 3-month pilot intervention designed to decrease the constant risk and countless emotional and social challenges that citizens of San Salvador, El Salvador encounter. The project trained educators and students in *Centro Escolar Distrito Italia*, a school located just outside El Salvador's capital, San Salvador. Building on the school's effort to provide these groups with hope for a better future, Brain Education brought a new educational foundation to enhance its teachers and students' learning and growth.

Context of study

Fifty percent of Tonacatepeque's total population belongs to gangs. Children and youngsters are not only being recruited but also face constant exposure to drug abuse and many other circumstances that continuously threaten to hamper their health and life motivation.

The *Centro Escolar Distrito Italia* offers a unique opportunity for children to escape violence and conflict, recover a sense of hope and start to create a healthy and productive life for themselves and their community.

The conventional methods of education focus mainly on one-dimensional patterns of learning which solely develop technical skills. The *Centro Escolar Distrito Italia* has understood that the best way for these children to truly overcome trauma and prevent risks of marginalization is to develop their own creative capacity to manage themselves. In other words, they need to learn how not to be distracted by external circumstances but rather change them for the better.

The purpose of this research study is to measure and analyze the levels of improvement in both teachers and students through Brain Education by looking at their condition before and after training. It is our hope that the experience and results will serve as a foundation to create a long-term, comprehensive Brain Education plan across El Salvador to prepare its younger generations to become healthy, active, leading agents who are able to create a bright future for their country. The research questions for the study are as follows:

Research Questions

1. Between Time 1 and Time 2, how do students who received the treatment differ on measurements of mental health, reaction to trauma, motivation, self-efficacy, self-esteem, academic self-esteem, peer relationships, and gender beliefs of student?
2. Between Time 1 and Time 2, how do teachers who received the treatment differ on measurements of mental health, reaction to trauma, collective self-efficacy, and gender beliefs of teachers?
3. To what extent are there significant differences between students and teachers in the control and treatment groups?
4. How do the results of the student and teacher focus groups shape the importance of the brain education program?

Method

The experimental research design employed a pretest-posttest control group design where classrooms were randomly assigned to either the treatment or control group. This study involved two phases: 1). the implementation of the Brain Education program from June through August 2011; and 2). data collection and analyses of survey and focus group data.

This pilot study utilized both quantitative and qualitative data to study the effects of the brain education program on students and teachers in Tonacatapeque, El Salvador. Participants included 78 students and 38 teachers. Participants were randomly selected to either be in the treatment or control group. There were 39 students in the treatment group and 39 students in the control group. There were 23 teachers in the treatment group and 15 teachers in the control group. Students and teachers in the treatment group received the brain education curriculum over 3 months four days a week and each session lasted in length for 70 minutes. Surveys were administered to control and treatment group participants before the brain education program was initiated (June 2011) and after it was completed (August 2011).

The Brain Education instructors were directed to conduct daily observations and take journalistic notes regarding students and teachers in the program that could offer information-rich details about their personal and school-related experiences in Tonacatapeque.

Focus groups were conducted at the end of the program. Purposive sampling was used to select participants for focus groups (Patton, 1990). Ten students participated in the student focus group and 7 teachers participated in the teacher focus group. Each focus group lasted for approximately an hour and 15 minutes. The moderator and assistant moderator of the focus group were employees of the El Salvador Ministry of Foreign Affairs and the Ministry of Education respectively.

Results

Research Question 1: Differences for students in the treatment group between Time 1& Time 2

Analyses of survey data included descriptive statistics, paired samples t-test, and analysis of variance between treatment and control groups for teachers and students. For students, the brain education program had a significant effect on several study variables. These results are depicted in Exhibit 1 below.

Exhibit 1. Results of paired samples t-test for students in the treatment group.

Study variable	Time 1 Mean	Time 2 Mean	P-value
Negative gender experiences	1.49	1.30	.02*
Peer relationships	3.26	3.44	.00***
Test anxiety	4.85	4.06	.02*
Current symptoms of trauma	1.84	1.68	.03*
Self-efficacy	5.32	5.52	*ns*
Intrinsic motivation	5.83	5.98	*ns*
Self-esteem	3.72	3.87	*ns*
Academic self-esteem	3.53	3.51	*ns*
Self-regulation	4.53	4.84	.05*
Cognitive Strategy Use	5.00	5.14	.41

Stress	3.17	2.91	.06^

*Note: The * symbol denotes that results are significant at the following levels *=p<.05; **p<.01; ***p<.001; The ^ symbol denotes that results are marginally significant ^=p<.10. NS= non-significant result.*

Results of the paired samples t-test indicate that brain education program had a significant effect on negative gender experiences (T1=1.49 and T2=1.30; *p=.02*), peer relationships (T1=3.26 and T2=3.44, *p=.00*), test anxiety (T1=4.85 and T2=4.06, *p=.02*), current trauma symptoms (T1=1.84 and T2=1.68, *p=.03*), and self-regulation (T1=4.53 and T2=4.84, *p=.05*) for students in the treatment group. Stress was marginally significant (*p=.06*).

Research Question 2: Differences for teachers in the treatment group between Time 1 & Time 2

In addition to having an effect on students, the brain education program also had an effect on teachers who participated. Exhibit 2 shows results for teachers from Time 1 to Time 2.

Exhibit 2. Results of paired samples t-test for teachers in the treatment group.

Study variable	Time 1 mean	Time 2 mean	P value
Collective self-efficacy	4.43	4.54	*ns*
Stress	2.41	2.09	.01**
School Climate	3.68	3.75	.10^
Teacher Attitudes	3.19	3.03	.09^
Student problems	2.50	2.78	*ns*
Initial trauma symptoms	1.85	1.67	*ns*
Current trauma symptoms	1.64	1.51	.09^
Gender respect	3.24	3.61	*ns*
Male responsibility	2.24	2.50	*ns*

Note: The * symbol denotes that results are significant at the following levels *=p<.05; **p<.01; ***p<.001; The ^ symbol denotes that results are marginally significant ^=p<.10. NS= non-significant results.

Exhibit 2 shows that the only significant result is that teachers report lower amounts of stress (*p=.01*) from Time 1 ($\overline{X}$ =2.41) to Time 2 ($\overline{X}$ =2.09). There were marginally significant results for school climate (*p=.10*), teacher attitudes (*p=.09*), and current symptoms of trauma (*p=.09*).

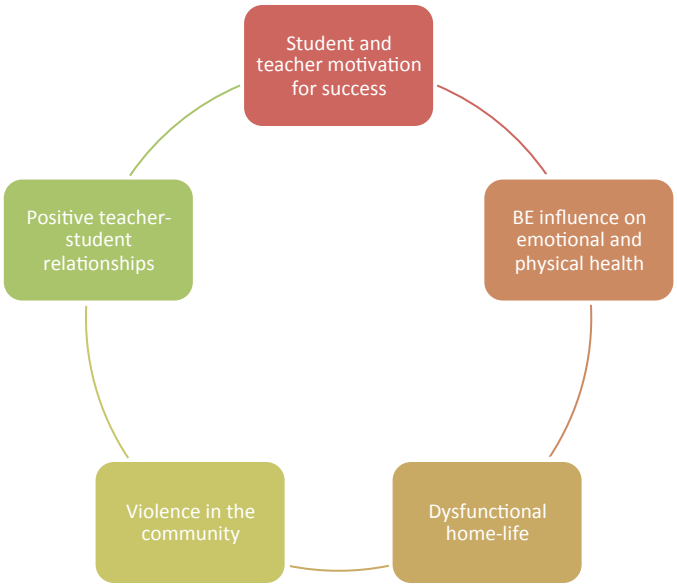
Research Question 3: To what extent are there significant differences between students and teachers in the control and treatment groups?

For teachers, there were no significant differences between control group and treatment group participants at Time 2. For students, there were significant differences between control group ($\overline{X}$ =5.04) and treatment group ($\overline{X}$ =5.51) participants at Time 2 on self-efficacy (*p=.03*). There were marginally significant differences between control and treatment group students at Time 2 on negative gender experiences ($\overline{X}_c$=1.49 and $\overline{X}_t$=1.31; *p=.09*) and stress ($\overline{X}_c$=2.96 and $\overline{X}_t$=2.73; *p=.06*).

Research Question 4: How do the results of the student and teacher focus groups shape the importance of the brain education program?

Data from focus groups were analyzed using thematic content analysis. Thematic content analysis is a type of analysis where themes or combinations of categories are assessed in the data (Smith, 1992). By using thematic content analysis, several themes emerged regarding student and teacher experiences in Tonacatepeque. The focus group data suggest that positive teacher-student relationships, motivation for success, emotional and physical well-being, and the effects of the violent community surroundings are all relevant to the lives of the students and teachers who participated in this study (see Exhibit 3 below).

Exhibit 3. Graphic representation of summary of findings from student and teacher focus groups.



Perhaps the most important finding was that students and teachers, in their separate groups, stated that positive teacher-student relationships helps students feel supported and keeps them motivated. Teachers are dedicated and motivated to do their jobs but experience a lot of stress due to the violence in the environment surrounding the school and the negative experiences that students have at home. Some students come from disadvantaged homes where they are "beaten or may go without eating". Students "have a need for affection and care from the adults in their lives" and for the most part, teachers are able to provide this.

Against this background, teachers report that the Brain Education program has improved physical and emotional health, strengthened their relationships with each other, decreased tension and stress in the school, they have a stronger motivation and have improved their relationships with students. Also, teachers admit that they are able to trust themselves more.

The students are more motivated to do well so that they can learn more and "move beyond ignorance". They also express being more confident: "BE has helped me control my fears, I can maintain a lack of fear and know that I will achieve anything I set my mind for". Most students also report positive changes in physical and emotional health. Some of the students started to replicate

what they've learned in their communities: "For me, it's not just receiving…I'm teaching about 25 children in my community now. I'm doing a huge work. And everyone can do that. I feel I'm doing a huge work in my community. I'm showing them…perhaps they can also show others when they grow up".

Observations from the BE facilitators suggest that the students enjoyed the BE program a great deal and want it to become a regular part of the school curriculum. At the end of the student focus group, one student expressed, "It would help us focus in our studies".

Discussion

Overall, this pilot intervention study shows that the Brain Education program positively impacted the students and teachers at the Centro Escolar Distrito Italia. Even though certain findings were non-significant, the relationships between Time 1 and Time 2 for these findings were in the hypothesized direction. Students and teachers reported benefiting greatly from their involvement with Brain Education and the quantitative data also demonstrate this message. Perceived stress was the common significant indicator across both groups. These results fully support the expansion of the Brain Education program to other districts in El Salvador to make the program a part of the school curriculum in the country.

References

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