

Youth Mental Well-Being and Brain Education in Harlem: An Analysis of the Spring and Fall 2017 Pilot Intervention

Research Report for the IBREA FOUNDATION

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Introduction

Schools today seem to emphasize only high-stakes standardized testing results when judging the success or failure of our students. Unfortunately, this singular approach leaves out many of the most important components of what we consider a good education and those related to socio-emotional learning. In the United States, student proficiency scores in Mathematics and English Language Arts may be increasing around the country, but there is also increased student stress levels, growing numbers of depressed students, increased bullying occurrences, and large numbers of students dropping out before earning a high school degree. These aforementioned findings show that we need a more holistic approach in our education system; one that enhances our student's self-efficacy and emotional well-being in addition to academic achievement and behavioral outcomes.

The studies described here examine the effects of the IBREA FOUNDATION's curriculum on emotional regulation, motivation, resilience, determination, responsibility, mind-body connectivity, competition vs. collaboration, and other socio-emotional topics, in ninth grade students attending school in Harlem, NY. Data were collected during Spring 2017 and Fall 2018 in two different groups of students. This paper will discuss findings from two intervention programs conducted during Spring 2017 and Fall 2017. Both of the interventions occurred over ten weeks where students received the brain-based holistic education curriculum taught by the IBREA FOUNDATION twice a week. The intervention was designed to decrease stress, depression, and other social and emotional challenges that students encounter while increasing their motivation, self-efficacy, self-esteem, resilience, sense of security, and peace of mind. This program

evaluation was carried out by an independent researcher in concert with IBREA FOUNDATION staff.

Literature Review

Youth mental health and well-being affects academic outcomes and motivation in students (Ryan & Deci, 2000). Butzer, LoRusso, Shin, and Khalsa (2016) conducted a randomized control trial study in which middle school students were randomly assigned by classroom into treatment and control groups to measure the effects of yoga on substance use. The study had some significant findings where students in the control group reported more negative behaviors (i.e. smoking) than students in the treatment group. These findings, while preliminary, do show that yoga and mindfulness activities play an instrumental role in the development and behavior of adolescents. Factors associated with mental health, such as emotional regulation, are part of what students need to learn and can affect how students interact with others and the choices that they make (Butzer et al., 2016).

IBREA's brain-based holistic education and mindfulness programs

Previous research studies on brain-based holistic education have shown that it does have a positive effect on outcomes such as stress-coping strategies (Oh, 2009); self-regulation and concentration (Shim & Ko, 2009); and learning ability and emotional stability (Kim, 2006). Brain-based holistic education provides an overview of body and brain functions at a biological/scientific level and allows the students to experience those functions, become more aware of them, and maximize their potential through continued practice and focused attention on themselves. IBREA FOUNDATION's own research on

middle school students in a public school in Hawaii showed increased levels of motivation, self-esteem and self-efficacy and decreased levels of stress.

Research Question

The overall goal of piloting the brain education curriculum with youth in Harlem, New York is to investigate the effects of the Brain Education program on student psychological and socioemotional outcomes. Previous research has established a link between psychological factors and academic achievement. This research is founded at the intersection of cognitive and educational psychology.

1. In the Spring and Fall, between Time 1 and Time 2, how do students who received the Brain-based Holistic Education treatment differ on measurements of motivation, self-esteem, academic self-esteem, resilience, depressive symptoms, self-efficacy, feelings of security, peace of mind, and stress?

Methods

In both the Spring and Fall, the experimental research design employs a pretest-posttest treatment design. The sampling design is known as cluster sampling where classes were selected and every student in that class was asked to participate in the study. The classes were selected by the school Principal and Vice-Principal. The school's leadership chose the Freshmen students of the Humanities Academy. They considered that this group faces the most socio-emotional challenges among the different Academies in the school. They also thought it would be effective to provide the program to Freshmen students who will continue in the school for another 3 years and can be reinforced in the

IBREA FOUNDATION training program, and tracked over the years. This study had two phases: 1) the implementation of the IBREA FOUNDATION training program and 2) data collection and analyses of survey data.

Using the IBREA FOUNDATION program, students participated in teacher-led exercises designed to improve sensory awareness, motor control, balance, emotional regulation, attention, resilience, and imagination, among others. Physical flexibility exercises were used to strengthen mental/cognitive flexibility as communication and interaction between the brain's right and left hemispheres improves. The lessons then proceeded towards self-awareness of the students as individuals and how they can make the choices and decisions that will increase their chances to be successful. As this inner awareness is strengthened, the student's ability to concentrate and focus on the task at hand is enhanced. The practice-based learning provides students with the chance to experience the theories they learn through the program first hand, in their own body and mind. This is aimed at making their changes more sustainable over time.

Participants

The present paper describes two studies; one study was conducted during the 2016-2017 school year and the other study was conducted during the 2017-2018 school year. Ninth and tenth grade students received the IBREA FOUNDATION's curriculum during Spring and Fall 2017. During Spring 2017, 6th grade and high school students received the IBREA FOUNDATION's curriculum. There were 72 students total that participated in the study. There were 40 female students and 32 male students in the study. There were 66 students total that participated in the study during Fall 2017. There were 32 female students and 34 male students in the study. Table 1, below, provides

demographic information about the two groups of students who participated in the study during the Spring and Fall.

Table 1. Demographic information on study participants

	Study1: Spring 2017	Study 2: Fall 2017
Gender	Boys: 32 students Girls: 40 students	Boys: 34 students Girls: 32 students
Grade in school	Grade 6: 1 student Grade 9: 60 students Grade 10: 7 students Grade 11: 3 students Grade 12: 1 student	Grade 9: 64 students Grade 10: 2 students
Age	14 years: 41 students 15 years: 21 students 16 years: 8 students 17 years: 1 student 18 years: 1 student	13 years: 12 students 14 years: 44 students 15 years: 10 students

Site

The site for both data collection and intervention periods is A. Philip Randolph public high school located on 443 West 135 Street New York, NY 10031 (Harlem, NYC). The school has about 1,500 students total. The majority of the students are Hispanic (61%) and Black (30%). There is an average 14% of Students with Special Needs and 10% English Language Learners. Average SAT scores are 894/1600, and approximately 60% of the students graduate from high school and enroll in college.

Instruments

The same survey was used for both of the interventions. Each questionnaire included in the survey is listed below.

- Motivated Strategies for Learning Questionnaire (Pintrich & DeGroot, 1990)
- Perceived Stress Scale (Cohen, Kamarck, & Mermelstein, 1983)
- General Self-Esteem (Rosenberg, 1989)
- Academic Self-Esteem (Hare, 1977)
- Children's Self-Efficacy Scale (Bandura, 2006)
- Connor Davidson Resilience Scale (Connor et al., 2003)
- Human Security Scale (Mahoney & Pinedo, 2007)
- Patient Health Questionnaire (Spitzer et al.)
- Peace of Mind Scale (Lee et al., 2012)

Procedure

During the spring and fall of 2017, students completed a survey containing the aforementioned nine scales at the beginning of the intervention. They then received a modified brain education curriculum two days a week for 10 weeks (the original curriculum is designed for a 12-week program). The sessions lasted for approximately 40-45 minutes. The brain education curriculum developed by IBREA FOUNDATION was used for the intervention. Brain-based holistic education stresses, among others: the importance of focusing inside ourselves; the importance of sharing and caring; the importance of working together; and the importance of mind-body connection for focused attention and better results in school and life.

Results

What were the baseline levels of students on the study scales for both interventions (spring and fall)? Table 2 and 3 provide the means for all study variables in Time 1 and Time 2.

Table 2. Means for all study variables at Time 1 and Time 2 (Spring 2017).

	Time 1 Mean	Time 2 Mean
Self-Esteem	3.60	3.99
Motivation	4.14	4.88
Academic Self-Esteem	3.63	3.68
Perceived Stress	3.00	2.74
Resilience	2.54	2.82
Depressive symptoms	1.79	1.67
Security	2.96	3.25
Peace	3.49	3.89
Enlisting Social Resources	46.65	59.58
Self-Efficacy for Acad. Achievement	71.09	75.54
Self-Regulated Learning	59.31	67.20
Leisure Time Skills	53.54	65.72
Meet Others' Expectations	71.22	74.41
Social Self-Efficacy	72.37	80.51
Self-Assertive Efficacy	78.24	84.94
Enlisting Parental and Community Support	39.70	50.36

Table 3. Means for all study variables at Time 1 and Time 2 (Fall 2017).

	Time 1 Mean	Time 2 Mean
Self-Esteem	3.59	3.87
Motivation	4.56	5.01
Academic Self-Esteem	3.52	3.73
Perceived Stress	2.98	2.81
Resilience	2.54	3.02
Depressive symptoms	0.77	0.47
Security	2.7	3.12
Peace	3.38	3.84
Enlisting Social Resources	58.8	66.65
Self-Efficacy for Acad. Achievement	73.62	81.69
Self-Regulated Learning	62.49	69.52
Leisure Time Skills	58.9	67.79
Meet Others' Expectations	67.55	73
Social Self-Efficacy	74.61	81.63

Self-Assertive Efficacy	77.48	84.62
Enlisting Parental and Community Support	53.04	61.66

Intervention effects

Between Time 1 and Time 2, how do students who received the brain-based holistic education treatment differ on measurements of motivation, perceived stress, , general self-esteem, academic self-esteem, self-efficacy, resilience, human security, depressive symptoms, and peace of mind for students receiving the intervention?

To answer this research question, paired samples T-test were conducted to analyze data from the Spring and Fall.

During the **Spring 2016**, paired samples T-tests revealed that there were significant differences between Time 1 and Time 2 in all study variables (motivation, perceived stress, general self-esteem, academic self-esteem, self-efficacy in enlisting social resources, self-efficacy for academic achievement, self-efficacy for self-regulated learning, self-efficacy for leisure time skills and extracurricular activities, self-efficacy to meet others’ expectations, social self-efficacy, self-assertive efficacy, self-efficacy for enlisting parental and community support, resilience, human security, depressive symptoms, and peace for students receiving the intervention).

Figure 1. Differences in Time1 and Time 2 on Study Variables.

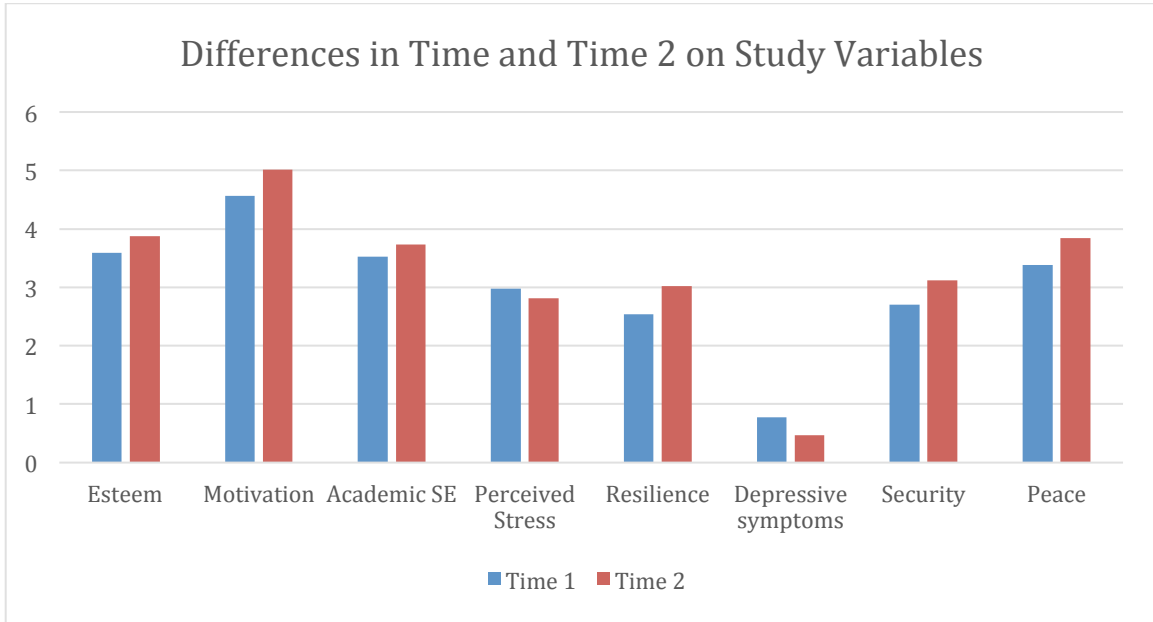
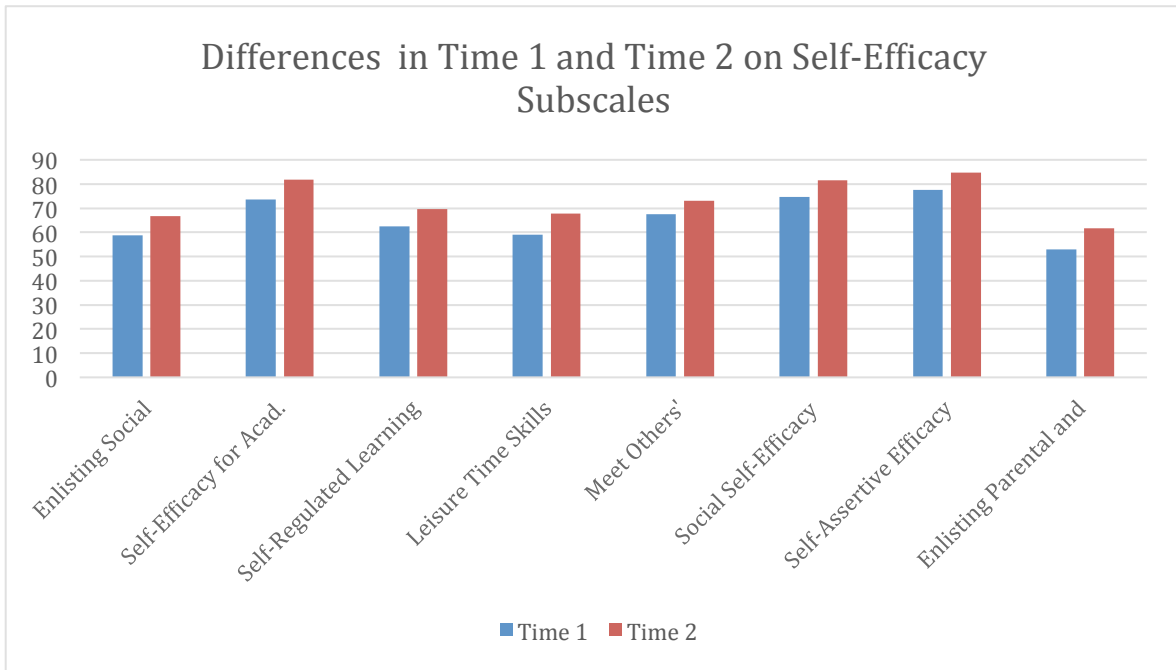


Figure 2. Differences in Time 1 and Time 2 on the 7 Self-Efficacy Subscales.



There were gains in self-esteem, motivation, academic self-esteem, resilience, security, and peace of mind. By the end of the intervention, students reported less perceived stress and less depressive symptoms.

During **Fall 2017**, paired samples T-test revealed that there were significant differences between Time 1 and Time 2 in the following study variables: general self-esteem, motivation, perceived stress, resilience, depressive symptoms, human security, and peace of mind. There were also significant gains in self-efficacy subscales: self-efficacy in enlisting social resources, self-efficacy for academic achievement, self-efficacy for self-regulated learning, self-efficacy for leisure time skills and extracurricular activities, social self-efficacy, self-assertive efficacy, and self-efficacy for enlisting parental and community support. See Figure 1 and 2.

Figure 3. Differences in Time1 and Time 2 on Study Variables.

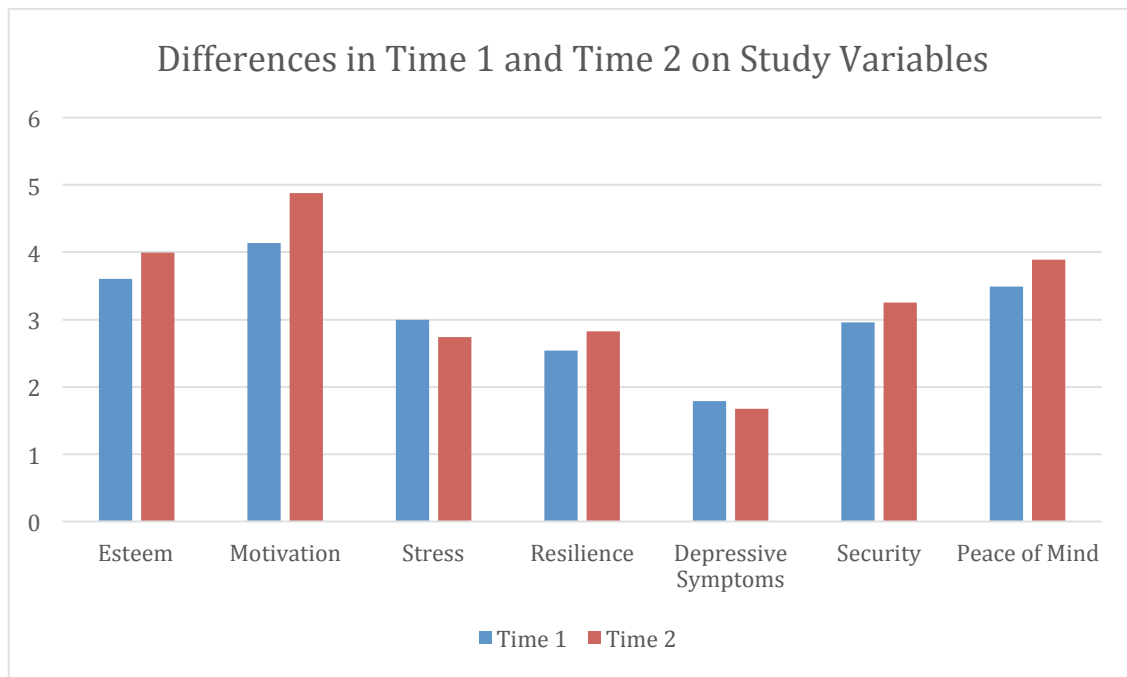
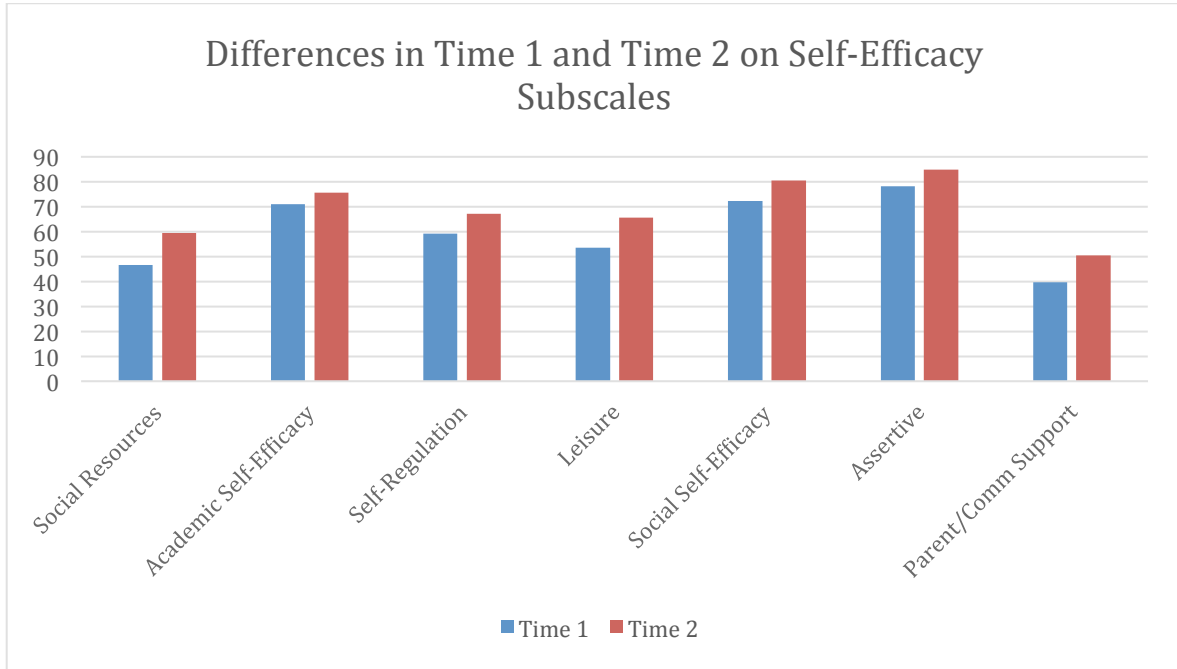


Figure 4. Differences in Time 1 and Time 2 on Self-Efficacy Subscales.



There were gains in self-esteem, motivation, resilience, security, and peace of mind. By the end of the intervention, students reported less perceived stress and less depressive symptoms.

Qualitative Data

Three of the classroom teachers of students participating in the IBREA curriculum, provided their observations as follows:

Teacher observations

- ✓ Teacher 1: Most students made some small but important changes in themselves. Some of the students got more out of it than others. For instance, some of them opened up emotionally, they could release anger and frustration. Others became

more assertive. Some learned to listen more, be more attentive. I also observed how some students who are generally not interested in any class, not doing anything at all, did something in this particular class - more than they ever did in any other class. This was interesting to observe.

- ✓ Teacher 2: Overall I think that the students learned a lot from the program. Naturally, students that put the most into their learning got the most out of it. Students who were also struggling at first, managed to gradually change and learn something as well. Students who were habitually absent could not get any benefit, although another observation I made was that some of the students who never came to class overall, sometimes came to this particular class.
- ✓ Teacher 3: I could see overall more motivation and drive, more effort, better attitudes, more focus, more responsibility and productivity. I could see how those specific students, who were more actively engaged with the class, made big changes. For instance, one of my students who used to be very disrespectful and angry consistently, completely changed her behavior after the program.

We also asked randomly selected students to provide their testimony with the program.

This is what they provided.

Student testimonies

Student 1:

The IBREA FOUNDATION program is very helpful in my life. It helps me to relieve my

stress that I have gained throughout the day. I have learned a lot about my body and how to keep it healthy, and how keeping your mind positive is very important for your whole life. We have learned how waking up our senses can help us, and how we can determine how our mind works. The program has also taught us how to work with one another effectively. We need to communicate well with others in order to get things done right. I realize how life is full of a lot of unknown things, and by helping each other we can find them out more effectively.

Student 2:

My experience at the IBREA program was a good experience. At first, I wasn't very fond of the program, but I had to do it because it was mandatory, but over time while as we started doing the activities, it felt very therapeutic for me, surprisingly. The IBREA program was overall a great experience. I learned how to relax myself in stressful situations. It is definitely a good program, different from any other school courses because it helps your life overall.

Student 3:

What I like about the class is that they encourage you to be calm and happy and focusing on what I am doing at the moment. And if I do it wrong, the teacher will help me find a way to do it, like moving my body around or making my mind more positive. It's like there is nobody left out, like in other classes. Everybody can find a way to do all the activities.

Student 4:

This class has helped me become more relaxed and focused. This class was good also because it shows how much our brains can change and develop. They are not fixed.

Student 5:

This class is very helpful to deal with stress and self-motivation. I enjoyed it very much, especially since the instructors were very kind and they explained everything thoroughly. I learned things about my brain that I didn't know. This program should expand and possibly become a permanent required class. Definitely better than gym class and physical education, so, thanks! I realize meditation is very important for anyone, and thanks to this class, it will become part of my life when negative feelings try to disturb my inner peace. Again, thank you IBREA!

Student 6:

I feel like this class has been helpful learning how to control my stress. But this class has been stressful also because there is also a lot of discipline, so it balances out. I can be productive.

Discussion

The IBREA FOUNDATION program has been proven to be effective in enhancing the mental, physical, and emotional health of study participants. There were marked improvements on all study variables in the expected direction during both school years.

Comparisons between Figure 1 and Figure 3 and Figure 2 and Figure 4 show that

results are similar and significant for student groups participating at different times of the year. Both the students who participated in the spring of 2016, as well as, students who completed the brain education curriculum in the fall of 2017 showed improvements in all variables.

Closing/Implications/Recommendations

Based on study results, we believe that the middle and high school in Harlem, NY should agree to expand the IBREA brain education curriculum school-and community-wide. Regarding ideas for future research, the intervention team would like to conduct repeated measures analysis focused on racial differences in motivation, self-esteem, and self-efficacy, as well as, examine how student GPA and other academic outcomes may have changed as a result of the intervention. Ultimately, we would strive to make further connections between the intervention and changes in the students and impact in the family/community. Moreover, brain awareness and mindfulness are becoming one of the leading interventions in resolving issues around student discipline.