The Impact of Arts Education in High-Trauma Schools:

A Pilot Study Examining Student Engagement, Creativity, and Social Emotional Learning in the Chula Vista Elementary School District

A Final Report to the California Alliance for Arts Education

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Abstract

Four schools from the Chula Vista Elementary School District, the largest elementary school district in California, participated in a pilot study during the 2018-19 school year to examine the impact of varying levels of arts integration and discipline-based arts education on student creativity, engagement in school, and social emotional learning (SEL). Results revealed that the findings could not be interpreted without considering the level of trauma experienced by this community of schools located less than two miles from the border of Mexico. The current pilot study served to break new ground in a critical examination demonstrating how artistic solutions can be used to increase student interest and engagement with school, cognitive flexibility, and identification of novel solutions, as well as increase emotional regulation and empathy, for students living in challenging circumstances. A key finding of the study is that four years of sustained arts integration combined with five years of discipline-based arts learning served as a tipping point for student gains, emphasizing the importance of demographics and geography in determining how long it may take for positive results to emerge in high trauma environments. Of critical importance is the recognition that participation in the arts served to offer students in high trauma environments a new perspective, new solutions to real world problems, and ways to see beyond themselves and address the trauma of others – powerful skills that will give them options to implement sustained change throughout their lives.

Introduction

Our students are in a state of emotional crisis. A recent survey revealed that 57% of our nations' public elementary and secondary students are worried a school shooting will happen in their school (Noam, 2018). Added to this burden is the growing number of students who are impacted by the rising effects of immigration concerns, as indicated in a recent study documenting the negative effects on cognitive development and educational progress among school-age children in homes affected by the immigration crisis (Brabeck, Sibley et al., 2015). These feelings of anxiety impact students in multiple ways including learning and memory retrieval and social emotional learning, as demonstrated in a recent study finding that stress may hamper the updating of memories and induce a shift from a flexible, cognitive form of learning towards rather rigid, 'habit'-like behavior (Vogel & Schwabe, 2016). Neuropsychological studies have identified cortisol, a glucocorticoid hormone, as one of the most widely studied markers of stress (Staufenbiel, Penninx, Spijker, Elzinga, & van Rossum, 2012). Several clinical studies have reported reductions in salivary cortisol levels after behavioral interventions to reduce stress including arts interventions (Kaimal, Ray, & Muniz, 2016; Aboulafia-Brakha, Suchecki, Gouveia-Paulino, Nitrini, & Ptak, 2014; Galvin, Benson, Deckro, Fircchione, & Dusek, 2006, and Miluk-Kolasa, Obminski, Stupnicki, & Golec, 1993). In addition to learning and academic impacts, heightened stress and anxiety often lead to feelings of isolation and detachment. As researchers examine data-driven methods to address this current educational crisis, of critical importance is how to do our part, as a community of educators, to fortify the problem solving skills, engagement, and social

emotional health of our students. In other words, how do we make our students feel empowered, capable, and included? Dr. Francisco Escobedo, Superintendent of the Chula Vista Elementary School District (CVESD) translated this understanding to instigate systemic, sustainable change throughout the largest elementary school district in California by viewing the arts as front-end public safety as stated through his words, "The arts are a matter of public safety. If students feel like they belong, they won't hurt each other." When we transfer the impact of belonging to the classroom setting, we see that when students feel like they belong, they collaborate with each other, help each other, and lift each other up when they see someone in need of encouragement (Chand O'Neal, Smyth, et al, 2019).

The current pilot study is contextualized by its unique demographics and geographic location. As the largest elementary school district in California with over 30,000 students under the age of 11, CVESD is located less than two miles from the border of Mexico. The threat of deportation is a daily reality for many students and their families, many of whom are also in high poverty, high crime, and high trauma environments. To address the evidence-based urgency of student academic and emotional welfare under these circumstances, a substantial shift in pedagogy added the arts as a central framework to teaching and learning goals district-wide. It was in this context that that the following research questions, with corresponding hypotheses, were posed: Research Question 1. What is the impact of varying levels of arts integration/discipline-based arts learning on student creativity, engagement and social emotional learning (SEL) from the student perspective? Hypothesis 1: As students receive increasing levels of arts integrated instruction/discipline-based arts learning, they

will report a greater increase in creativity, engagement in school, and SEL over the course of the study.

Research Question 2. What is the impact of varying levels of arts integration/ discipline-based arts learning on student creativity, engagement and SEL from the teacher perspective? Hypothesis 2: As students receive increasing levels of arts integrated instruction/discipline-based arts learning, their teachers will report a greater increase in student creativity, engagement in school, and SEL over the course of the study.

Research Question 3. What is the impact of varying levels of arts integration/discipline-based arts learning on student creativity, engagement and SEL from the parent perspective? Hypothesis 3: As students receive increasing levels of arts integrated instruction/discipline-based arts learning, their parents will report a greater increase in student creativity, engagement in school, and SEL over the course of the study.

METHOD

Visual and Performing Arts (VAPA) in CVESD

The commitment of CVESD to use the arts as central to their teaching and learning pedagogy added over 75 full-time arts teachers to the roster in less than two years starting in 2015. The district's unprecedented investment in arts instruction was made possible by $15 million in funding approved by the Chula Vista school board in June of 2015 ($5 million over three years). The allocation was made available from Governor Jerry Brown's state local control funding formula that shifted education spending decisions to the local level and targeted disadvantaged students. The addition

of these staff members at varying levels of teaching experience warranted additional

professional development and teacher training to address issues of equity and

accessibility for students provided by partnering organizations, county offices of

education, and state offices of education. At the time of the current study, arts teachers at

participating schools were distributed as full-time and part-time as illustrated in Table 1.

Table 1: Arts Resources: Number of Arts Teachers and Amount of Instruction by School

	Number of Full-time Arts Teachers	Number of Part-time Arts Teachers	Amount of Arts Integration	Amount of Sequential Standards Based Arts Instruction
School A	2	0	0	2 years
School B	3	0	0	3 years
School C	3	0	4 years (minimal/sporadic)	4 years
School D	1	1	4 years (continuous)	5 years

Amount of Arts Integration and Sequential Standards Based Arts Instruction by School

School A: During the 2018-19 academic school year, School A began its first year of whole-school Arts Integration in the genre of drama with the La Jolla Playhouse. At the time of the study, only primary grade teachers had received arts integration training. Classroom teachers received VAPA teacher push ins every Friday for an academic school year (a push in is defined as the teaching of arts content by a genre-trained teaching artist or credentialed arts teacher either teaching in tandem with the classroom teacher, or teaching without the classroom teacher). School A was in year 2 of sequential standards based arts instruction which contained 50 minutes of music and 50 minutes of visual art per week, provided by one full-time music teacher (orchestra, general music, Orff), and one full-time, credentialed visual arts teacher.

School B: During the 2018-19 academic school year, School B had no arts integration; but was in year 3 of sequential standards based arts instruction with 50 minutes of music instruction, and 50 minutes of visual arts instruction and 50 minutes of physical education/dance instruction per week, provided by one full-time music teacher (orchestra, general music, Orff, ukulele, choir), one full-time physical education teacher/dance, and one full-time credentialed, visual arts teacher.

School C: During the 2018-19 academic school year, School C had minimal/sporadic arts integration over the course of the previous four years with Collaborations: Teachers and Artists (COTA), a local arts integration partnering arts organization, which included one-on-one training with a teaching artist for six weeks and multiple all-school trainings in arts integration. School C was in year 4 of its

implementation of sequential standards based arts instruction with 50 minutes of music, 50 minutes of visual arts, and 50 minutes of dance provided weekly by one full-time music teacher (orchestra, general music, Orff), one full-time dance/physical education teacher, and one full-time, credentialed visual arts teacher.

School D: During the 2018-19 academic school year, School D was in its fourth year of whole-school arts integration, with specific focus on the genre of drama with the La Jolla Playhouse in year 1, as well as receiving arts integration professional development with COTA through Turnaround Arts: California. During this time period, School D was also in year five of sequential standards based arts instruction weekly implementation with 45 minutes of music and 45 minutes of visual arts provided by one full-time music teacher (band, choir, musical theater, general music/Orff, drumming (provided by Beat the Odds – Social Emotional Learning (SEL) program)), and one part-time, credentialed visual art teacher.

Design and General Procedure

The current investigation employed a pre/post, multi-group, quantitative research design to examine the effects of arts integrated instruction and discipline-based arts learning on student creativity, student engagement in schoolwork, and SEL on 4_{th} and 5_{th} grade students in four CVESD schools. These outcomes were examined at the student level (self-report), teacher level (teacher perceptions of their student's creativity, engagement in school, and SEL), and parent level (parent perceptions of their child's creativity, engagement in school, and SEL). The student, parent, and teacher assessments of student creativity, engagement in school, and SEL were collected over two time points

in the 2018-19 academic school year: September - October 2018 (pre-test), and May - June 2019 (post-test). For the purpose of the study, arts integration and discipline-based arts learning were viewed as the study intervention.

A total of four participating schools were matched on demographics including ethnicity, average academic achievement scores, percentage of EL students, and Title 1 status (percentage of students receiving free and reduced lunch), and were chosen based on the amount of arts education and arts integration implementation to ensure that all schools were comparable on aspects other than arts exposure.

Participants

Demographic information was provided for the following three groups of consented participants: students, parents and teachers from CVESD Schools A, B, C, and D.

Students

Two to three classrooms per grade were randomly selected from each school and in some cases constituted the entire section of the grade cohort for a total of 127 4th grade and 172 5th grade students comprised of 162 girls and 138 boys, ranging in age from 8-11 years, with the mean age of 9.52 years, and mode age of 10 years. Student ethnic distributions across all schools emerged as 48% Hispanic, 6.3% Native American, 6.3% Asian, 8.7% White, with 23% of students declining to answer. Table 2 displays the number of student participants for pre/post-test data collection by school, and further described by grade level and gender. School B provided the largest number of student participants with a total of 108 with 61 girls and 48 boys enrolled in the study, followed

by School A (total n = 79, girls = 41, boys = 38), School D (total n = 60, girls = 29, boys = 31), and School C (total n = 52, girls = 31, boys = 21). Student numbers by school by grade level are also seen in Table 2. Though School A included 1 sixth grade student in the data collection, data from this participant were removed for post-test comparisons.

Table 2. Student School by Grade, Gender, Age, and Pre/Post-Test Participation Rates

	N Pre/Post	4th	5th	Median Age	Mode Age	G/B*
School A	102/79	37	41	9.49	10	41/38
School B	142/108	61	48	9.39	10	61/48
School C	230/52	1	51	9.85	10	31/21
School D	92/60	29	31	9.50	10	29/31

*Note:G/B=Girl/Boy

All consented students in each randomly selected classroom were included in the study and assessed during one 40-minute class period at each time point. Students completed the battery of study assessments using an online platform with a classroom teacher or school administrator present. Students who did not have signed parental consent were escorted by school personnel to another classroom where they participated in a supervised activity.

Table 3 provides student ethnicity percentages by school. Hispanic/Latino students comprise the largest ethnic group in all four schools with multiple variations comprising the second through sixth ethnic groupings.

Table 3. Student Ethnicity Percentage by School

	White/ Caucasian	Hispanic/ Latino	African American	Native American	Asian/ Pacific Islander	Multi- racial	Other
School A	7	26	4	3	11	13	15
School B	13	41	3	10	3	3	36
School C	5	37	2	3	1	0	4
School D	1	39	0	3	4	0	13

Table 4 illustrates the change in student participation percentages by school. As the decline in percentages indicates, school participation rates in schools ranging from School A (0 arts integration/early discipline-based arts learners) to the School C (moderate arts integration/moderate discipline-based arts learners) dropped in participation by similar percentages (77-78%), while School D (maximum arts integration/maximum discipline-based arts learners) showed higher participation rates by 12%, indicating a marked increase in participation at post-test over Schools A, B, and C. This increase can be attributed to a number of possible factors including higher levels of family arts engagement, a more persistent student cohort, or increased faculty engagement in arts learning. Each of these explanations begins to show how School D student results are separating themselves from the other three schools, and demonstrate a curious difference that requires further exploration to be addressed in subsequent analyses.

Table 4: Student Participation by Time Point by School

	Pre-test	Post-test	% Decrease in Participation
School A	102	79	77%
School B	142	108	76%
School C	230	52	78%
School D	92	60	65%

Parents

A total of 9 parents participated in both the pre and post-test data collection with gender distributions revealing 4 female and 5 male participants. Parent participation by school in descending order is documented as: School D (n = 5), School A (n=3), and School C (n =1), with no parent participation from School B. Regarding ethnicity and educational level, the majority of the parents (n=8) came from Hispanic/Latino backgrounds, with n = 1 parent identifying as White. The majority of the parents (n=8) listed their highest level of education completed as high school or below. The parent sample size was too small for meaningful statistical analysis, and was therefore excluded from further query.

Teachers

A total of 17 fourth and fifth grade teachers from three of the four participating schools completed the pre- and post-test assessments providing insight into the creativity, student engagement and social emotional learning of the students in their classes. Teacher gender distributions indicated 14 females and 3 males. Teachers from School C

did not provide data on their students at post-test data collection. It is important to note that the School District and Teacher Union were undergoing contract negotiations at the time of pre-test data collection for Schools A, B, and C, which impacted the ability of teachers to participate in the study as the study began. The school most impacted by this circumstance was School C, as this school had the largest number of teachers in the union at that time. The low number of School C teachers enrolled in the study at pre-test, in this case, can be attributed to circumstances surrounding teacher contract negotiations, and is followed by the resulting non-participation at post-test. By the time School D was scheduled for pre-test data collection, contract negotiations had been resolved. Table 5 indicates teacher ethnicity at both pre- and post-test.

Table 5: Teacher Ethnicity at Pre and Post-Test

	White	Hispanic	Black	Native American	Asian	Multiracial	Decline to Answer
School A	2	1	0	0	1	0	0
School C	4	2	0	0	0	0	0
School D	0	4	0	0	0	0	3

Table 6 indicates the gender distribution and number of teachers participating at pre- and post-test, as well as the number of students for which each teacher completed assessments on creativity, student engagement, and SEL during the course of the study.

Table 6. Number of Pre/Post-Test Surveys Completed by Teachers by School

	Number of 4th and 5th Grade Teachers Enrolled in Study by School	Gender Distribution (Female/Male)	Pre/Posttest Surveys Completed by Teachers by School
School A	5	5/0	100/85
School B	8	6/2	122/105
School C	3/0	2/0	3/0
School D	4	3/1	85/79

Table 7 reflects a description of the average level of expertise in arts teaching and integration indicated by the enrolled 4th and 5th grade teaching faculty by school. School D reports the highest average number of years teaching in the arts with 15.5 years, followed by School B and School C both at a reported average of 13 years of teaching experience in the arts, followed by School A with an average of 6.3 years.

Table 7. Teacher Arts Teaching Experience by School (in years)

	Teaching Experience in the Arts (in years)	Number of Years at the Current School	Number of Teachers that Integrate the Arts (of 4th and 5th grade teachers)	Length of Time (years) Teacher has been Integrating the Arts
School A	6.3	3.5	4	5.5
School B	13	8.6	7	12.5
School C	13	8	2	3
School D	15.5	7.2	4	2.3

Review Board Approvals

Two levels of review boards approved the study. A prerequisite of school district approval requires that initial full-board approval must be granted by an independent review board (IRB) whose services are obtained by the research team before the protocol is submitted for school district review. To meet this requirement, an independent review board was hired by MUSE Research to conduct full-board assessment of the study protocol. The IRB approved the study protocol which included all four schools. School district level approval was granted upon confirmation of IRB approval as well as full school district review. Upon CVESD review board approval, school principals, whose schools met study criteria, were contacted and invited to participate after details were provided regarding study participation, time commitments, and study protocol regarding inclusion of students, parents and teachers. After receiving signed letters of support from each school principal, 4th and 5th grade classrooms were randomly selected from each 4th and 5th grade level of each school. Principals were asked to approve the final list of participating classrooms based on unique individual school circumstances

Consenting and Assenting of Participants

Parent consent and student assent forms were sent electronically via email to parents on behalf of themselves as well as potential student participants. Parents consented on their own behalf, and were asked to explain the study to their child, thus allowing for authentic student decision-making regarding their interest in study participation. Parents were responsible for obtaining their own child's assent. Teachers were informed of all parents who provided consent and obtained assent from their

children via an electronic format that could be accessed from any device. Computers were also made available at each school site in the event that parents chose to provide consent and/or participate in the study on campus. Teachers were also provided with consent forms and consented on their own behalf.

Measures

Study measures assessed student self reports on creativity, engagement in school, and SEL as well as parent and teacher evaluations of student creativity, student engagement in school, and SEL. All assessments were administered electronically to students, teachers, and parents at two time points. A brief description of each assessment follows. All Cronbach's alpha values were calculated from participant responses.

Student, Parent and Teacher Assessments

Student Assessments

The *Student Attitudes about Flexibility: Self Report* (AAFS) ($\alpha = .60$) examined actions, attitudes, and thinking style in the context of elementary school aged themes. It contains 10 Likert scale items (e.g., I consider all kinds of solutions (not just one) when solving problems).

Runco Ideational Behavior Scale: Student Report (RIBS-S) ($\alpha = .86$) asked students to report how often they have certain ideas, thoughts, or behaviors. This scale contains 25 Likert scale items and is designed to measure creative potential (e.g., I have ideas about a new invention).

Idea Judgment Scale (IJSS) (α = .68) asked participants to choose between two sets of ideas contained in six items, according to their preference. The idea sets convey either a higher or lower degree of creativity (e.g., Students A and B were asked to make a list of things that are flat. This is what they said: Student A said: pancake, a tire, a lake, a table, the floor. Student B said: a table, a piece of paper, an ice rink, TV screen, lines. Now it's your turn…whose ideas do you like better?). This instrument is designed to measure originality and creativity by the selection of the most novel ideas.

Attitudes about Art: Student Report (AAAS) (α = .89) asked students to rate how they feel about different types/forms of the arts and arts-related activities, as well as the relationship between the arts and other subjects. This assessment contains 16 Likert scale items (e.g., One way to understand history is to look at art through the ages.).

Chand O'Neal & Schulz Begle Student Engagement Survey: Student-Report (ENG-S) (α = .78) examined student attitudes toward school and school-related activities. The 31 Likert scale items were designed to assess subscales of emotional engagement, interest, effort, positive challenge, and flow (e.g., I spend more time than needed on projects that interest me.). Both subscale and global scores were obtained from students, teachers, and parents.   In some cases, based on theoretical criteria, items were included in more than one subscale, so the global overall score is slightly different than an average of all scores.

Holistic Student Assessment (HSA) Student Version: The HSA is a 61-question early-detection self-report tool that provides a profile of a student's social emotional strengths and challenges. Each of the constructs measured is standardized by gender and grade level and converted to a standard deviation score (Z-score). If a student scores one

or more standard deviations (SD) in either direction from the norm for their gender and

grade level, they are assigned a strength or challenge depending on the direction of that

construct. Table 8 provides HSA constructs, construct definitions, and sample questions.

Table 8. HSA Constructs, Construct Definitions, and Sample Questions (Student Version)

Construct	Definition	Sample Question
Resiliencies		
Action Orientation	Engagement in physical and hands-on activities	I like being active and moving my body
Emotional Control	Self-regulation of distress; management of anger	I react to things so quickly I get in to trouble.
Assertiveness	Confidence in putting oneself forward; standing up for what one believes.	I stand up for things that matter to me.
Trust	Perception of other people as helpful and trustworthy	People will help someone who is in trouble.
Empathy	Recognition of other's feelings and experiences	I like to help people with their problems.
Reflection	Inner thought process, self-awareness; responsive toward societal issues.	I try to understand the world I live in.
Optimism	Enthusiasm for and hopefulness about one's life.	I am happy with the choices I make in my life.
Relationships		
Relationships with Peers	Positive, supportive social connections with friends and classmates.	I have friends who care about me.
Relationships with Adults	Positive connections and attitudes toward interactions with adults.	There are adults I look up to and admire.

Learning & School Engagement		
Learning Interest	Desire to learn and acquire new knowledge.	I am curious about new ideas.
Critical Thinking	Examination of information, exploration of ideas, independent thought.	I like to figure out how things work.
Perseverance	Persistence in work and problem solving despite obstacles.	When I try to accomplish something, I achieve it.
Academic Motivation	Incentive to succeed in school.	I will get good grades on school exams.
School Bonding	Positive personal connections and the sense of belonging in one's school	I feel like people understand me at my school.

Tables 9 and 10 provide alpha coefficients to establish the reliability of the

creativity, student engagement, and SEL subscales used in the study.

Table 9. Means, Standard Deviations, and Reliability Coefficients of the Creativity and Student Engagement Measures

	Pre-test				Post-test		
	M	SD	α		M	SD	α
Attitudes about Art	3.59	0.58	0.78		3.44	0.69	0.86
Engagement & Interest	2.27	0.55	0.81		2.19	0.65	0.89
Attitudes about Flexibility	3.51	0.67	0.69		3.41	0.85	0.78
RIBS	2.26	0.72	0.9		2.19	0.79	0.92
Idea Preference	1.43	1.36	NA		1.31	1.29	NA

Table 10. Reliability Coefficients (α) and of the SEL Measure with Corresponding Student Sample Sizes

Scale	Student data: Pre-Test		Student data: Post-Test	
	α	Valid N	α	Valid N
Action Orientation	0.615	420	0.633	315
Emotion Control	0.708	420	0.669	312
Assertiveness	0.573	420	0.613	315
Trust	0.684	420	0.686	315
Empathy	0.816	428	0.848	318
Optimism	0.777	420	0.756	315
Reflection	0.656	420	0.669	312
Relationships with Peers	0.640	420	0.717	315
Relationships with Adults	0.618	420	0.635	315
Academic Motivation	0.590	428	0.699	318
School Bonding	0.689	420	0.688	312

*Total Pre sample=428 responses. Survey responses from January to December 2018
 Total Post sample=322 responses. Survey responses from January to September 2019

Parent Assessments

Parental Evaluation of Students' Creativity (PESC; Runco, 1984) (α = .89)

contains 25 Likert scale items and asked parents to indicate whether or not their child had

participated in certain creative and artistic activities (e.g., To what degree, or how often,

is this child curious?). Parents were not informed that the focus was on creativity and art.

It scored for creative potential and flexibility.

Runco Ideational Behavior Scale – Parent Report (RIBS-P) (α =.90) asked

parents to rate the frequency with which their children displayed specific behaviors (e.g.,

"how often does your child...Suggest arrangements for rearranging the furniture in his or

her bedroom?"). Each of the 32 Likert scale items is indicative of the production of ideas,

or "ideational behavior." The items are designed to measure creative potential.

Holistic Student Assessment (HSA) Parent Version: The HAS: Parent Version is

a 61-question early-detection self-report tool that provides a profile of a student's social

emotional strengths and challenges from their parent's perspective.

Teacher Assessments

Teachers' Evaluation of Students' Creativity (TESC) (α = .90) is based on social

validation technology, which means that the wording is based on actual teacher input.

The focus is creativity and the traits that support or inhibit it. The 25 Likert scale items

examine flexibility, motivation for creativity, and social creativity. This is a criterion

measure and indicative of actual artistic and creative activity.

Runco Ideational Behavior Scale (RIBS-T) (α = .95) is for teachers and is

virtually identical to the RIBS-P. This assessment asks teachers to rate the frequency with

which their students display specific behaviors (e.g., "How often does this student...Think

of better endings for books, stories, or shows?"). Each behavior is rated on a 1-5 Likert

scale. Each is indicative of the production of ideas, or "ideational behavior." The 32

Likert scale items are designed to measure creative potential.

Chand O'Neal & Schulz Begle Student Engagement Survey: Teacher-Report

(ENG-T) (α = .89) examined teacher perspectives of their student's attitudes toward

school and school-related activities. The 33 Likert scale items are designed to assess subscales of emotional engagement, effort, and positive challenge.

Holistic Student Assessment (HSA) Teacher Version: The HSA: Teacher Version is a 61-question early-detection self-report tool that provides a profile of a student's social emotional strengths and challenges from their teacher's perspective.

Results

Students

Research Question 1: What is the impact of varying levels of arts integration/discipline-based arts education on student creativity, engagement and social emotional learning from the student perspective? Hypothesis 1: As students receive increasing levels of arts integrated instruction/discipline-based arts learning, they will report a greater increase in creativity, engagement in school over the course of the study.

Results documenting students' assessments of their own attitudes and behaviors on creativity and student engagement revealed differences in student outcomes based on varying levels of arts integration/discipline-based arts learning which for Schools A, B, and C did not support Hypothesis 1; however, for School D, Hypothesis 1 was differentially supported. As seen in Table 10, School A (minimal arts integration/introductory discipline-based arts learning) student level outcomes indicate a statistically significant decrease from pre- to post-test, demonstrating that minimal and introductory arts integration and arts learning provide little to no influence in student self assessments of creativity and engagement in school in schools in high trauma environments. Results for Schools B and C indicate that while the differences between pre- and post-test are not statistically significant, mean scores do decline over time

indicating that in high trauma schools, even at moderate levels of arts integration and arts learning, student level outcomes in creativity and student engagement decline over time. Results for School D (maximum, consistent arts integration and maximum discipline-based arts learning) tell a different story. In a high trauma school with high levels of arts offerings, outcomes begin to shift. As seen in Table 11, though the results are not statistically significant, student means on the subscales of Engagement and Interest, Flexibility, and Ideational Behavior increased from pre- to post-test demonstrating an upward trend in results. This upward trend suggests that in high trauma schools, an investment of 4 years of sustained arts integration and 5 years of discipline-based arts learning provides the necessary amount of support to increase student creativity, cognitive flexibility (the ability to shift categories easily and draw out ideas and solutions to problems from multiple domains), as well as identify novel ideas and solutions.

Table 11. Pre/Post-Test Creativity and Engagement Student Comparisons by School

Pre/Post-Test Comparison Results by Schools

Variables	School A					School B					School C					School D				
	N	M	SD	t	p	N	M	SD	t	p	N	M	SD	t	p	N	M	SD	t	p
Arts	79	3.63/3.41	.59/.64	3.3	0	52	3.45/3.35	.59/.64	1.19	0.24	109	3.72/3.53	.59/.46	2.7	0.01	60	3.52/3.41	.56/.67	1.15	0.26
Engagement/Interest	77	2.31/2.09	.53/.68	2.7	0.01	50	2.18/2.08	.57/.59	1.03	0.31	107	2.32/2.27	.58/.68	0.8	0.44	60	2.11/2.16	.53/.52	-0.62	0.54
Flexibility	78	3.63/3.43	.68/.71	2.1	0.04	52	3.48/3.34	.79/.90	0.87	0.39	108	3.63/3.46	.62/.92	2	0.05	59	3.34/3.39	.61/.60	-0.54	0.59
RIBS	75	2.21/2.03	.74/.76	2.1	0.04	51	2.23/2.07	.83/.79	1.29	0.2	103	2.36/2.26	.76/.83	1.2	0.23	57	2.14/2.17	.69/.64	-0.39	0.69
Idea Preference	76	1.37/1.28	1.32/1.37	0.5	0.63	52	1.35/1.46	1.23/1.20	-0.5	0.6	107	1.37/1.24	1.32/1.25	0.9	0.4	60	1.32/1.28	1.55/1.38	0.13	0.89

Figure 1 provides a graphic representation of the pre/post mean scores identified in Table 11, indicating that the decline in mean scores is greatest in School A,

Figure 1. Pre/Post Test Creativity and Student Engagement Student Results by School
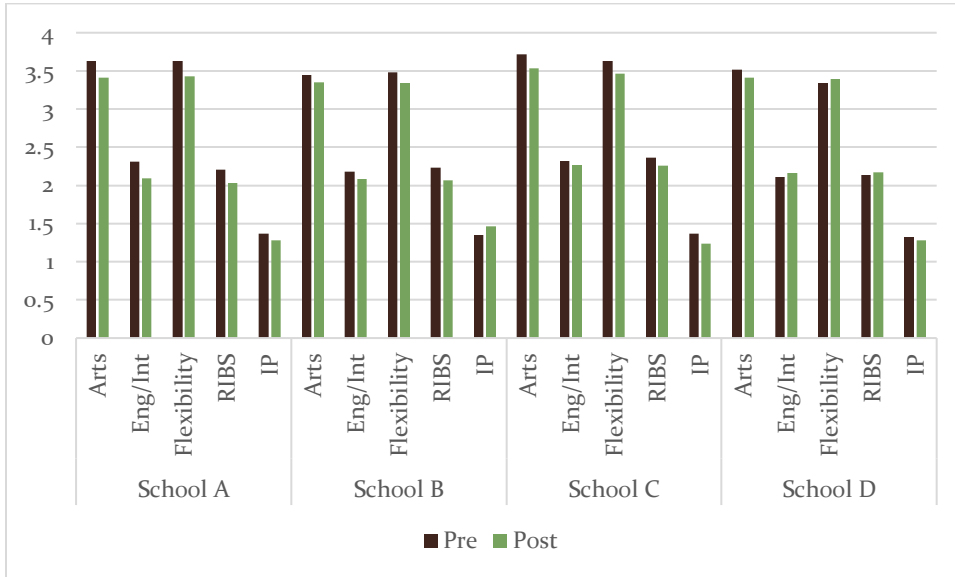
which served as the control school for the study. For Schools B, C, and D, there is a

positive association between the level of intervention (e.g. minimum, medium, and

maximum intervention) and the change scores. In other words, the decline in scores

become smaller as the level of intervention increases. For the School D, there are even

positive changes from pre to post-test scores for school interest and engagement,

flexibility, and creative ideation (RIBS).

Table 12 provides student mean comparisons on all SEL subscales. Results

reveal that in School A (No Arts Integration/Introductory Arts Learning), though not

statistically significant, decreases are seen between pre- and post-tests across all (with the

exception of Action Orientation) SEL subscales. In School B, (No Arts

Integration/Minimal Arts Learning), once again, though not statistically significant,

means between pre- and post-tests begin to increase as seen in the subscales of Emotional

Control, Assertiveness, Trust, and Peers, indicating that the arts are beginning to effect SEL skills. In School C (Moderate, Sporadic Arts Integration/Moderate Arts Learning), though not statistically significant, all means decrease from pre- to post-test indicating that the arts did not appear to influence SEL skills in this school. In School D (Maximum Arts Integration/Maximum Arts Learning), however, and once again, the results are not statistically significant; mean scores increase in the subscales of Emotional Control and Empathy, indicating that the arts improved SEL skills in this high trauma school in areas that are unexpected; yet highly beneficial to students who are consistently in environments requiring emotional regulation in the face of circumstances that are not in their control, while also demonstrating empathy toward others, despite the difficulty they are experiencing themselves.

Table 12. Student Social Emotional Learning Student Means by School

Paired t-test Results by Schools

Variables	School A (n=70)				School B (n=43)				School C (n=101)				School D (n=55)			
	Pre-test	Post-test	t	p	Pre-test	Post-test	t	p	Pre-test	Post-test	t	p	Pre-test	Post-test	t	p
Action Orientation	2.09	2.10	-0.19	0.85	1.88	1.83	0.49	0.63	2.06	1.98	0.99	0.33	1.93	1.73	1.69	0.10
Emotion Control	2.13	2.08	0.48	0.64	1.81	1.89	-0.83	0.41	2.10	2.03	1.04	0.30	1.60	1.79	-1.54	0.13
Assertiveness	1.61	1.52	1.07	0.29	1.68	1.72	-0.42	0.68	1.70	1.53	2.59	0.01	1.62	1.49	1.49	0.14
Trust	1.83	1.60	2.65	0.01	1.60	1.61	-0.06	0.95	1.72	1.60	1.65	0.10	1.55	1.39	1.40	0.17
Empathy	2.20	2.10	1.12	0.27	2.05	2.02	0.24	0.81	2.21	2.09	1.66	0.10	2.01	2.06	-0.48	0.63
Optimism	2.08	1.95	1.66	0.10	1.79	1.79	0.04	0.97	1.93	1.72	2.56	0.01	1.64	1.57	0.60	0.55
Reflection	2.07	1.96	1.27	0.21	2.03	1.83	1.63	0.11	2.08	1.91	2.20	0.03	1.83	1.75	0.89	0.38
Peers	2.18	2.08	1.27	0.21	2.10	2.12	-0.29	0.77	2.08	1.91	2.06	0.04	1.91	1.70	1.88	0.07
Adults	1.83	1.75	0.88	0.38	1.83	1.68	1.08	0.29	1.80	1.69	1.31	0.19	1.69	1.59	1.02	0.31
Academic Motivation	2.19	2.16	0.41	0.68	2.02	1.91	0.97	0.34	2.23	2.06	2.34	0.02	2.02	1.90	1.15	0.26
School Bonding	2.10	2.06	0.44	0.66	2.01	1.76	2.18	0.04	2.14	1.90	3.24	0.00	1.93	1.67	2.36	0.02

Figure 2. Pre/Post Test Social Emotional Learning Student Scores by School
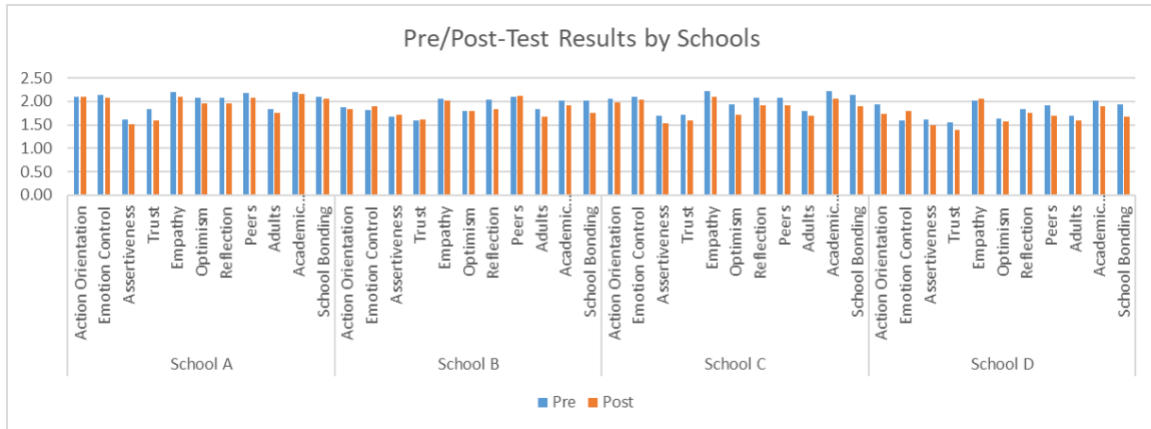
Teacher

Research Question 2: What is the impact of varying levels of arts integration/arts education on student creativity, engagement and social emotional learning from the teacher perspective? Hypothesis 2: As students receive increasing levels of arts integrated instruction/discipline-based arts learning, their teachers will report a greater increase in student creativity, engagement in school over the course of the study.

In support of Hypothesis 2, Teacher assessments of student creativity and engagement in school significantly increased across all participating schools (as a reminder, School B did not participate in data collection at post-test). As seen in Table 13 and graphically in Figure 2, statistically significant increases from pre- to post-test indicate that at varying levels from 0 arts integration/introductory arts learning through maximum arts integration/maximum arts learning, teachers across all levels of arts instruction believed that the performance of their students on creativity and engagement in school increased independent of level of arts instruction.

Table 13. Teacher Assessments of Student Creativity and Engagement by School

Paired t-test Results by Schools

		School A						School C						School D			
Variables	N	M	SD	t	p		N	M	SD	t	p		N	M	SD	t	p
RIBS	85	.79/1.71	.74/.77	-0.7	0		105	.69/1.71	.68/.97	-13.53	0		79	1.12/1.55	.79/.85	-4.63	0
Engagement/Interest	85	.85/1.84	.77/.66	-0.8	0		105	1.02/1.80	.69/.69	-13.53	0		79	1.51/1.73	.56/.60	-2.98	0
Creativity	85	3.53/6.43	.92/2.10	-2.5	0		105	3.95/7.00	.96/1.93	-21.72	0		79	4.09/6.50	1.06/1.42	-19.06	0

Figure 2. Teacher Assessments of Student Creativity and Engagement by School
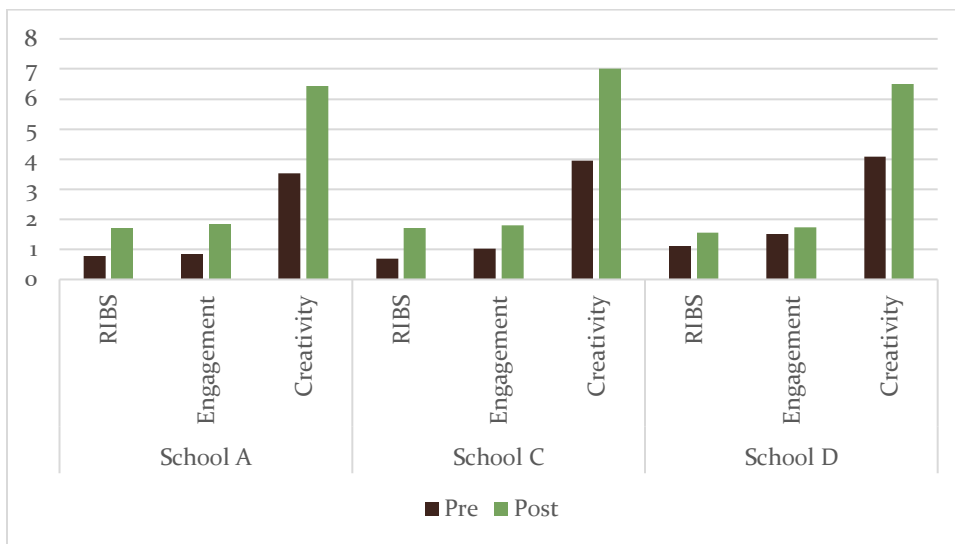
As seen on Table 14, teacher assessments of student SEL indicate that there was a significant improvement in scores for a majority of the SEL subscales in Schools C (all subscales) and D (Assertiveness, Trust, Empathy, Optimism, and Reflection), with fewer significant subscale improvements in School A (Assertiveness, Empathy, Optimism, and Reflection.   For School B, post-test scores were significantly higher for all the variables, excluding Emotional Control. Interestingly, post-test scores for emotional control declined for all three schools, suggesting that in high trauma environment, teachers

perceive their students having limited emotional control possibly due to the volume and

intensity of high trauma events experienced by these students.

Table 14. Teacher Assessments of Student SEL Scores by School

Paired t-test Results by Schools

Variables	School A (*n* =78)				School C (*n* =94)				School D (*n* =61)			
	Pre-test	Post-test	*t*	*p*	Pre-test	Post-test	*t*	*p*	Pre-test	Post-test	*t*	*p*
Action Orientation	1.62	1.79	-1.19	0.590	1.93	2.52	-7.69	0.000	1.68	1.77	-1.22	0.228
Emotion Control	2.30	2.26	1.07	0.288	2.60	2.34	4.28	0.000	2.57	2.44	1.79	0.078
Assertiveness	1.44	1.68	-3.42	0.001	1.60	2.27	-8.00	0.000	1.74	2.02	-3.95	0.000
Trust	1.65	1.81	-1.99	0.051	1.87	2.30	-4.39	0.000	1.63	1.97	-5.11	0.000
Empathy	1.62	1.91	-3.32	0.001	1.75	2.30	-5.61	0.000	1.91	2.13	-2.89	0.005
Optimism	1.47	1.78	-3.45	0.001	1.82	2.27	-4.49	0.000	1.55	1.97	-5.89	0.000
Reflection	1.51	1.83	-4.48	0.001	1.82	2.33	-6.22	0.000	1.82	2.16	-7.01	0.000

Figure 3. Teacher Assessments of Student SEL Scores by School
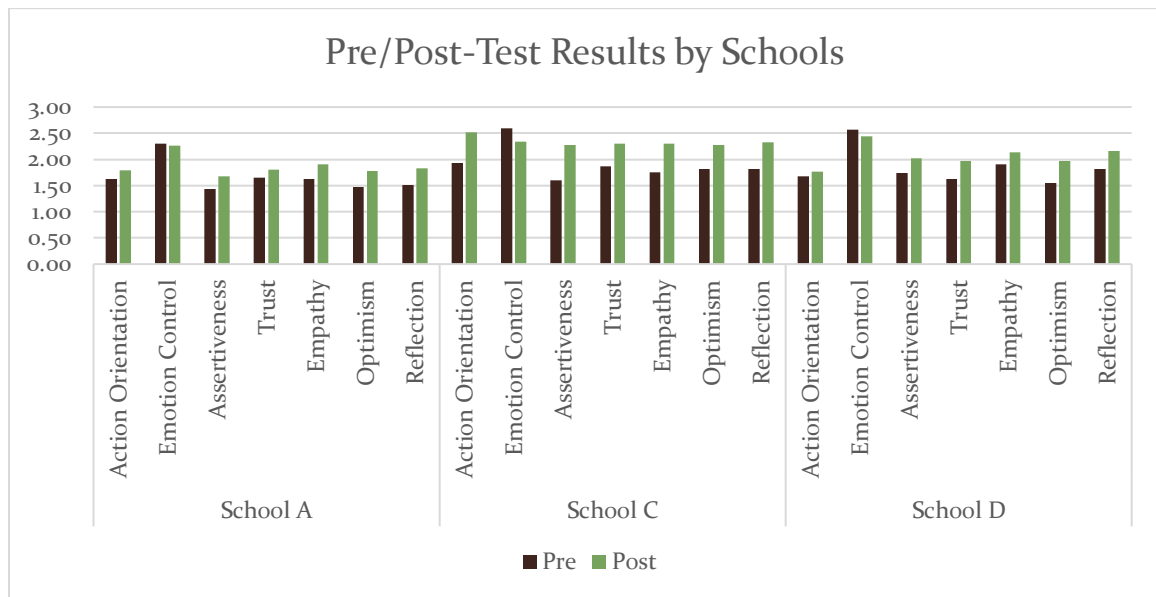
Discussion

The current pilot study focused on change from pre-test to post-test for fourth and

fifth graders in high trauma schools, comparing children in schools with intensive,

sustained integration of arts into the curriculum, combined with high levels of discipline-

based arts learning with children at schools with introductory arts exposure, and schools

with varying levels of arts programming in between. Student creativity, engagement, and

SEL were assessed from the perspective of students and teachers. The differences in change between students in the schools depicting varying levels of arts instruction generally were in the direction as hypothesized for the variables included in this study. However, the results were not significant, suggesting that in high trauma schools, extending this work to include larger samples sizes in order to increase statistical power, while studying the impact of sustained arts integration and learning programming that has been in place longer than four and five years respectively (the maximum number of years of arts integration/arts learning available in CVESD at the time of this pilot study) could yield even greater outcomes to support student learning, problem solving, and SEL.

The data differentially supported Hypothesis 1, which stated that as students receive increasing levels of arts integrated instruction/discipline-based arts learning, they will report a greater increase in creativity, engagement in school over the course of the study.

As Table 11 indicates, student self reports from School A demonstrate significant decreases in student creativity and engagement outcomes indicating that introductory levels of discipline-based arts learning with no arts integration in high trauma schools yield decreases in creativity and engagement, which could be due to a number of factors including potential discomfort of teachers introducing new material to their students if they had little arts experience. This potential discomfort can impact students who are already emotionally fragile and sensitive to their surroundings (Frykholm, 2004). Perhaps with the introduction of arts integration or discipline-based arts learning, coaching and additional teacher support through mentorship led by more senior teachers

could alleviate the potential stress and discomfort brought on by adding material to an already full teacher load.

Schools B and C demonstrated similar results which showed a decrease in student self reports on creativity and engagement though the drop in means was not statistically significant. In the case of these two schools, it is difficult to determine which condition yielded the results – was it minimal arts integration and/or moderate discipline-based arts education, or sporadic arts integration combined with moderate discipline-based arts education? Once again, factors that may explain these results include varying levels of teacher experience and confidence in teaching new material, or if familiar with arts instruction, perhaps integrating it with curricular material is an approach to teaching that could be bolstered by additional support through an online teaching community or a shared database of tried and true arts integrated lesson plans with detailed notes for classroom implementation. Perhaps in the case of the sporadic arts integration professional development training, the level of support for implementation may have waned in the context of teacher time and resources available during periods before and after the training.

Student self-reports from School D yielded the most promising results underscoring that when arts integration is a commitment supported by the school coupled by a consistently implemented, strong discipline-based arts learning program, changes in student outcomes begin to emerge. Once again, the high trauma environment of the communities from which these students come to school must be taken into account based on the evidence reviewed earlier in this paper. Trauma compromises learning and

decreases the capacity for students to absorb and retain information. Student results from School D clearly demonstrate that four years of sustained arts integration in combination with five years of high quality discipline-based arts learning increase student creativity and engagement, more specifically, cognitive flexibility, or the ability to utilize multiple categories of information to pattern solutions and ideas. Cognitive Flexibility has also been correlated with higher standardized test scores (Chand O'Neal, 2014f). In addition, student outcomes from School D showed increases in Ideational Behavior, or the ability to recognize and identify novel ideas and solutions. In regard to increased student engagement, previous studies have indicated that students who are engaged in school spend more time on task, collaborate more with their peers, and raise their hands more often in class to ask questions (Chand O'Neal, 2014f; Chand O'Neal, Schulz Begle, et al., 2014; McNamara, 1981).

While studies to date have not examined interest as it relates to the success of arts programming in schools, the literature has shown that interest influences 4th and 5th grade performance on reading comprehension tasks due to such interest factors as novelty, intensity, and ease of comprehension (Clark & Kamhi, 2014; Hidi & Harackiewicz, 2000). These results point to the need for further studies to explore the role interest in the artistic genre plays on effort and challenge used in arts programming for 4th and 5th grade.

Hypothesis 1 was differentially supported in the domain of SEL, indicating that for some constructs, level of arts integration and arts learning had a significant influence on student outcomes in a positive direction, and in some cases, a negative direction. For example, student SEL self reports in School A (no arts integration/introductory arts

learning) indicated a significant decrease in Trust from the beginning to end of the school year which supports the hypothesis demonstrating that with little to no arts, Trust in high trauma schools decreases. Recalling that schools were matched on multiple dimensions with level of arts being the main differentiating factor between schools, the connection between no arts and significantly decreased Trust in a school with high trauma is an interesting finding worth exploring through research examining the effects of additional forms of collaborative arts offerings (e.g., choirs, jazz ensembles, plays), recognizing the effects of collaborative arts on increasing trust in student populations (Chand O'Neal, 2018; Chand O'Neal, 2016c). School B student SEL results indicate no significant differences from pre- to –post test. However, School C (moderate, sporadic arts integration and moderate arts learning) showed a statistically significant decrease in Assertiveness, Optimism, Academic Motivation and School Bonding in students in high trauma schools from the beginning to the end of the school year, which is not consistent with the premise that as levels of arts increase, so do levels of SEL. Additional examinations to explore the origins of these results could include a qualitative assessment consisting of moderated bilingual focus groups and personal interviews designed to better understand what was happening in the school during that year – possible issues stemming from the geographic location include possible increased number of deportations impacting students during certain times of the year, or increased rates of incarceration effecting families.

School D showed mixed results with a statistically significant decrease in School Bonding; but surprising increases –the only increases in all four schools—in Emotional

Regulation, and Empathy. These results underscore the value of sustained arts exposure in students' lives clearly demonstrating the ability of students in high trauma environments to have the renewed capacity to regulate their emotions and feel empathy at a time when they themselves are experiencing trauma.

The data supported Hypothesis 2, which states that as students receive increasing levels of arts integrated instruction/discipline-based arts learning, their teachers will report a greater increase in creativity, engagement in school, and SEL over the course of the study. Three schools, A, C, and D all showed increases in teacher evaluations of student creativity, engagement, and SEL, indicating that teachers across all schools, regardless of level of arts exposure, showed optimism and believed their students were more creative and engaged from the beginning to the end of the school year. These results could be due to such factors as increased resilience and optimism as a response to stress and trauma (Iacoiello & Charney, 2014), Once again, to better understand the dynamic of each school and the differential impact of trauma on each student, a qualitative assessment could help to identify whether teachers are expressing hope for their student's improved well-being recognizing the differences in student response to high trauma dependent on such factors as levels of support provided outside of the school environment. Qualitative follow-up could also help to determine if additional art forms should be considered for inclusion in Schools C and D to disentangle these results.

Limitations

Parents provided consent allowing their students to participate in the research study; however, very few (n = 9) chose to participate in the study themselves. Possible factors included the inability of parents to take time off from work, or alter their work

schedules to attend the parent events arranged at each participating school which provided computers on which to complete the parent consenting process and pre/post-test assessments, breakfast, presentations about the rationale and purpose of the study, and student performances, all designed to encourage parent study participation. Additional plausible factors include mistrust of how demographic information would be kept anonymous, though specific descriptions of coding and anonymity were provided. Due to the proximity of these schools to the border of Mexico, the political climate, and the threat of deportation, parents may have been reluctant to participate.

Teacher responses to student creativity, engagement in school, and SEL increased from pre- to post- test across all schools, independent of level of arts integration and discipline-based arts instruction. These teacher results raise concerns of possible inflation which could be caused by the amount of trauma the teachers recognize their students respond to at rates of high frequency and intensity, possibly increasing empathy in teachers, resulting in artificially higher scores. However, the scores could also accurately reflect teacher assessments and may be influenced by artistic genre, length of arts instruction, and alignment between art form and student interest. Qualitative follow up with teachers would be instrumental in better understanding the nuances in teacher response and how to best interpret these findings within each school context.

Ethnic percentages in School B in the category of Other (36%) are consistent with findings that suggest that students are increasingly uncertain about how to identify themselves according to pre-determined ethnic categories (Chand O'Neal, 2017). Throughout the United States, the number of students that are multiracial and multi-

ethnic are increasing (Livingston, 2017), with fewer opportunities for students to authentically categorize how they identify themselves. This initial impediment potentially adds to the feelings of not belonging that many ethnic minority students experience in elementary school. These feelings of diminished belonging may be related to decreases in creativity, engagement in school, and SEL. Future examinations should explore this possible connection with both qualitative and further quantitative examinations.

Conclusions and Implications

This quantitative pilot study of four elementary schools less than two miles from the border of Mexico examined the creativity, student engagement, and SEL of 4th and 5th grade students from environments of high poverty, high trauma, and high rates of parent deportation. Results included a comprehensive picture of student outcomes influenced by varying levels of arts integration and discipline-based arts learning during a critical developmental period of their lives in preparation for their entry into middle school. The emphasis on community support through the multi-phased examination of outcomes from the perspectives of students themselves, and their teachers offers a penetrating perspective to develop data-driven supports for an educational community in need.

The current pilot study served to break new ground in a critical examination demonstrating how artistic solutions can be used to increase student interest and engagement with school, cognitive flexibility, and identification of novel solutions, as well as increase emotional regulation and empathy, for students living in challenging circumstances. A key finding of the study is that four years of sustained arts integration combined with five years of discipline-based arts learning served as a tipping point for

student gains, emphasizing the importance of demographics and geography in determining how long it may take for positive results to emerge. The arts have been valued as, and have proven to be, a natural facilitator for growth and healing within individuals and among communities, including school communities (Archibald & Dewar, 2010). The first study of its kind to examine the impact of varying levels of arts exposure, participation, integration, and discipline-based leaning in high trauma environments, this examination served to provide necessary data-driven evidence in favor of how the arts specifically impact critical cognitive skills including creative problem solving, the creation of new ideas, the recognition of novelty, and the ability to discern which ideas are most likely to solve real world problems. By promoting protective factors, strengthening assets, centering youth voice and agency, and preparing our youth for an unknown future, we will help them light a path forward, giving them confidence and the recognition that they are equipped to influence and change their own futures.

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