

Arts Engage Initiative: Raising student achievement by activating a five-tiered collaborative model of arts integration

Dr. Jerry James, Center for Arts Education

Dr. Lawrence Scripp, Josh Gilbert, Center for Music and the Arts in Education

Two years before Lin-Manuel Miranda's *Hamilton* opened on Broadway, principals who elected to participate in a new program and research initiative at The Center for Arts Education (CAE) in New York City expressed interest in integrating drama and social studies at four Title I middle schools. CAE originally intended the multi-year grant from The United States Department of Education to integrate performing arts and English Language Arts (ELA), but the school leaders worried that protocols and pressures associated with high-stakes testing would interfere with the innovative teaching, learning, and research methods proposed. Social studies classrooms, they maintained, would be more flexible and would not compromise student ELA or Math achievement.

There were pedagogical reasons as well. Despite modest progress in the 1990s, American middle school students have continued to struggle with social studies. The most recent national study (NAEP, 2017) found only 18% of eighth-grade students to be proficient in American history. Proficiency requires being able to discern connections among people, places, events, and perspectives—as well as articulating evidence-based interpretations and opinions in different historical periods. 21st Century educators know competencies such as these are necessary to succeed in school and life (Perkins, 2016), but decades of studies suggest students often perceive social studies to be an irrelevant and boring subject (Shaughnessy & Alayna, 1985). More recently, Russel and Waters (2010) linked these pervasive attitudes to the prevalence of passive learning in social studies classrooms, often only including lectures, worksheets, and rote memorization.

CAE's Arts Engage Initiative promised a different kind of education—exemplified by innovative social studies teaching—that featured interactive engagement among teachers, teaching artists and students, creativity, communication and reflection across various aspects of teaching and learning processes, and multiple measures of teaching (teacher curriculum planning, implementation, and student learning documentation skills) and student learning (learning social studies through research-based dramatization of historical events, characters and reflection on their relevance to current events). As envisioned, middle school students would now experience understanding history through social studies, and vice versa, theatre skills through dramatization of acting and scene writing skills through history. Furthermore, because AEI would take place during the day throughout the school year, principals saw opportunity to provide hundreds of students access to an art form that has received little attention in middle schools across the nation (Coopersmith, Parsad & Spiegelman, 2012).

Looking back, these refinements that emerged in the first three months of planning amounted to a course correction that enabled AEI to better serve participating students, teachers, families and school leaders. The debate, reflection and flexibility required to make that shift also established a spirit of collaboration that would drive the innovative program for the next four years. Consequently, AEI became CAE's most successful and verifiable model development and dissemination program to date. This paper describes its design, implementation and profound impact on student achievement.

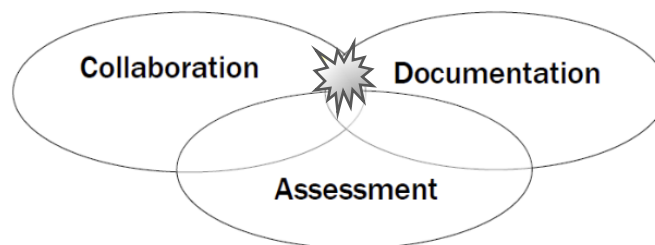
Project Hypothesis

The hypothesis of AEI was that integrated units of study designed and implemented by collaborating educators would develop multiple literacies that would in turn support developing artistry and related academic achievement. Unlike arts integration programs that use art activities to teach another subject, AIE was conceived to guarantee equal emphasis on standards-based instruction in the arts and other academic subjects. Accordingly, the model was described as *arts + arts integration*. While learning was intended to differ across individual students, an important outcome of the endeavor would be *interdisciplinary understanding*—the ability to articulate connections across domains of inquiry. In this particular project, it is hypothesized that participating students would not only become more adept at the skills required to be proficient in social studies and theater but also able to explain how integrating the dramatic arts informed their learning experiences.

Design

As Figure 1. illustrates, AEI sought to establish optimal conditions for arts + arts integration at the intersection of three essential program features of program development: collaboration, documentation, and assessment. Collaboration was essential to achieving effective planning, teaching and learning. Documentation was necessary to inform teaching, learning and research; and assessment was required to understand the program’s impact on individual students and school communities.

Figure 1. Factors Supporting Optimal Conditions for developing an Arts + Arts Integration Program



With these optimal conditions in mind, Dr. Eva Pataki and the AEI Project Team at CAE designed a comprehensive program model grounded in collaboration across five categories of stakeholders. Figure 2. Describes the roles of School Leaders, Social Studies teachers, theater teaching artists, the AEI Project Team at CAE, and researchers from the Center for Music and the Arts in Education (CMAIE).

**Figure 2. CAE's Five Tier Leadership Framework:
Stakeholder Collaborative Roles in AEI**

AEI Stakeholders	Collaborative Function
1. School Leaders	Collaborate within and across treatment schools to share opportunities, challenges and solutions. Collaborate with project team and researchers to ensure fidelity to the design
2. Social Studies Teachers	Collaborate with teaching artists on the design and facilitation of integrated units of study and share outcomes and best practices across treatment sites
3. CAE Theater Teaching Artists	Collaborate with social studies teachers to devise and facilitate units of study and methods of documentation focused on evolving quality of dramaturgy, acting, scene writing and reflective essays over the three years of the project. Collaborate with researchers to generate evidence of effective teaching and learning across disciplines
4. AEI Project Team (CAE Staff and site Coaches)	Collaborate with schools and research team to ensure smooth implementation. Develop Teaching Artists to incorporate inquiry, active learning, documentation and assessment into Drama plus Drama Integration (D+DI) lessons. Work with school leaders to ensure AEI serves all participants appropriately. Collect and deliver qualitative and quantitative data to researchers. Publicly present project findings in collaboration with school leaders and researchers
5. CMAIE Research Team (Principal Investigator and staff)	Work with CAE's project team, coaches, and school leaders to refine multiple measures of student achievement, and document and collect data in Embedded Performance Assessment Documentation (EPAD) activities, the organization of student D+DI portfolios, and performance assessment portfolio conferences. Analyze and interpret multiple measures of teaching and learning (including social studies, math, and ELA standardized test scores) to yield valid and reliable results. Submit project design and findings for peer review. Publicly shared verified outcomes.

Implementation

To ensure equitable access to the multi-year project, four treatment schools were selected through an RFP process. CAE conducted site visits to ensure that participating school communities cared about developing artistry as well as raising student achievement. A full planning year established the working cohort that would remain together throughout the duration of the grant. Control schools were harder to find because their leadership tends to see little to gain from comparisons. Nonetheless, CAE's long-standing relationships with NYC public schools produced four demographically similar middle schools. In exchange for their

participation control schools received free, unrelated teaching artist residencies (that would not compromise CMAIE's research design).

CAE recruited teaching artists who were interested in supporting research-based classroom practices to work with students on average two days per week, 30 weeks per year. All project stakeholders attended regularly scheduled network meetings and professional learning sessions. These convenings, which took place at CAE and cultural venues, covered a range of concerns—from scheduling, to thematic connections among historic trends and events, to teaching with generating evidence of learning in mind.

Teachers and Teaching artists co-planned, facilitated and selectively documented student learning during units of study. Mid into the first year of implementation it was clear active engagement in drama and social studies stood out in stark contrast to memorizing facts, places and people. Reporting in the U.S. D.O.E newsletter, Andrew MacDonald observed:

For students at Middle School 303K in Brooklyn, New York, George Washington is more than just a face on a coin or another name to memorize for their history test. Instead, he's a person with thoughts and feelings, grappling with the ideas behind the American Revolution. . . . As part of this project, students are writing, rehearsing, and performing monologues inspired by individuals who shaped history. . . Measures of student learning include (1) Open-ended worksheets where students describe their experiences; (2) Historical essays informed by primary sources; (3) Original dramatic monologues about social studies topics; (4) Images and videos of student performances; and (5) Individual reflections that illustrate how elements of theater contributed to students' understanding of social studies concepts. (USDOE, 2017, pgs. 5-6)

As AEI progressed, evidence of its positive impact on student achievement also emerged in standardized tests and student portfolio conferences. Teachers and teaching artists learned to collaborate more effectively. Parent attendance at student performances steadily increased. And school leaders became articulate advocates for drama and social studies integration, informed by research. The following section describes research methods and findings of CMAIE's longitudinal study.

Impact

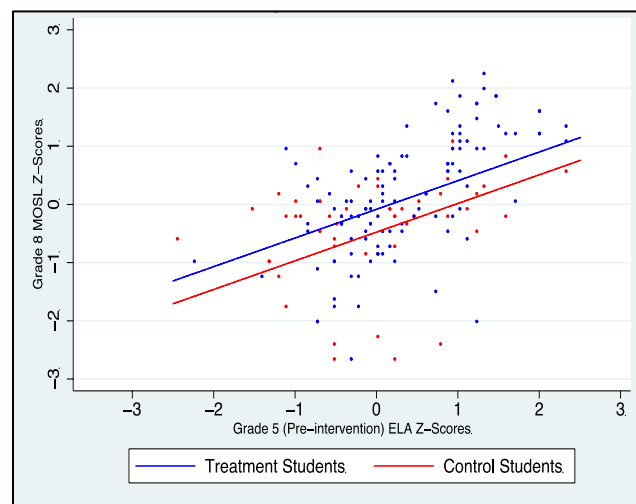
Like all U.S.D.O.E grants, performance on standardized tests was considered an essential quantitative measure of performance in treatment and control groups. CMAIE, however, went beyond addressing those expectations to provide a more telling view of AEI's impact on individual students and their school communities. Key results summarized here (full report freely available online¹) show the positive impact of AEI participation on student achievement in social studies and ELA.

¹https://www.researchgate.net/publication/326040326_Arts_Engage_Initiative_AEI_Final_Report_Narrative_The_Creation_and_Evaluation_of_a_Four_Year_Drama_Integrated_Social_Studies_Intervention_in_NYC_Middle_Schools

Social Studies Standardized Test Performance

Statistical results provided strong evidence that **AEI practices improve treatment school student performance on social studies tests**, as measured by the Measure of Student Learning (MOSL) Social Studies test results. Controlling for baseline achievement in ELA and demographic characteristics such as race, gender, and IEP status, researchers found that treatment students scored substantially higher than controls by the end of the project (Effect Size²=0.35, $p<0.01$). This positive effect is depicted in the scatterplot below, which plots 8th grade MOSL scores against 5th grade (baseline) ELA scores for treatment (blue dots) and control students (red dots), showing the average treatment effect (gap between blue and red lines).

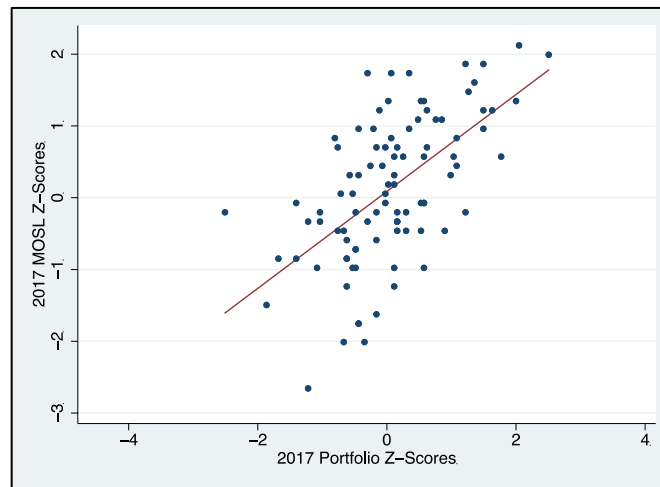
Figure 3. Final Year Treatment and Control Performance on MOSL Social Studies Test (controlling for baseline ELA scores and relevant demographic variables)



Furthermore, **strong correlations in treatment schools between AEI Portfolio scores and MOSL test scores** ($r=0.59$, $p<0.001$, $n=94$, depicted in the figure below), and **PAPC ratings and MOSL test scores** ($r=0.48$, $p<0.01$, $n=39$) **suggest stable, cohesive, and comprehensive causal link between AEI social studies teaching and learning practices and student performance on New York State standardized social studies tests.**

² “Effect Size” (ES) is a statistical measure of how “large” an observed effect is. In this case, the performance gap between treatment and control students is expressed in standard deviations rather than in the original scale of the test, making it possible to compare treatment effects across different measures and contexts. For an educational intervention, 0.35 is considered a moderate effect.

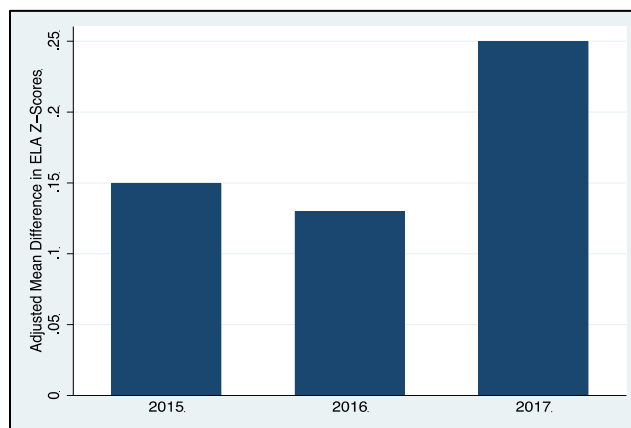
Figure 4. Strong, positive, and statistically significant correlation between Portfolio Scores and MOSL Scores



ELA Standardized Test Performance

Similarly, **analysis of state academic standardized test results provides strong evidence of the impact of the AEI intervention on the ELA performance of the AEI treatment students.** By the end of the project, regression analysis showed that the students in the AEI program scored substantially higher than control students in ELA tests, holding constant baseline achievement and demographics such as race and SPED status ($ES=0.25$, $p<0.001$). **This finding established the benefit of AEI’s impact on measures of treatment students’ language arts vocabulary, comprehension, and writing skills. Furthermore, over the three years of program implementation, these results occurred consistently and to an increasingly greater effect over time, as shown in the bar graph below.**

Figure 5. Average Treatment Effect Sizes in ELA state test scores, years 1-3 (controlling for baseline ELA scores and relevant demographic variables)



Though the AEI portfolios were created to document evidence of response to the AEI program, statistical analysis revealed that ratings of the student D+DI work were also linked positively to ELA scores. That is, **AEI student portfolio ratings became more strongly associated with ELA test scores over time**, growing from a positive and statistically significant, yet relatively weak association at the end of the first year ($r=0.31$, $p<0.05$, $n=47$) to a moderately strong association by the end of the project ($r=0.43$, $p<0.001$, $n=244$), **providing evidence of growing coherency between AEI work and ELA achievement.**

Furthermore, correlations based on AEI portfolio conference performance assessment ratings also became more strongly associated with ELA scores over time, going from a weak and marginally significant association by the end of year 2 ($r=0.28$, $p<0.1$, $n=42$) to a moderately strong and statistically significant association by the end of the project ($r=0.40$, $p<0.001$, $n=100$). **This finding validates the connection between dramatic performance (monologues, dialogues, and scenes) and novel forms of reflective understanding of social studies issues and historical figures and events.**

Discussion and Conclusion

Through the integration of the arts with Center for Arts education, we were able to bring the social studies content to life. The teaching artists who were absolutely brilliant and amazing and dedicated to the success of our students along with our amazing social studies teachers were able to lesson plan together and bring to life the historical content. And to see our students learning, taking on the role of particular historical figures and understanding the difficult decisions that these historical figures had to make that impacted history and the direction of our world had a more lasting impression on our students than if they were just reading from a piece of text. — Patrick Burns, MS 217 School Principal, New York City

The high levels of association found among a sequence of arts integration and academic learning outcomes reported in **this study confirms the hypothesis that academic achievement can be optimized through high quality, step-by-step innovative arts plus arts integration teaching practices exemplified by the AEI treatment schools during this three-year quasi-experimental study.**

Each step in the sequence is buttressed by qualitative and abundant statistical evidence of multiple facets of program integrity and diverse student learning outcomes that, understood in their entirety, provide compelling reasons to declare the entire program a wide-ranging success, as was reported by the participating school faculty and school principals³. In addition, the research methods are rigorous, comprehensive, and adhere to the principles and practices of high quality experimental research: the program design and dosage is precise, the matched population samples are appropriately selected at random, the longitudinal baseline data collection began prior to the project initiation, the analytical methods rigorous, appropriate, comprehensive, and aligned with the highest recommended standards of social research, and the conclusions are justified, yet respectful of the limitations of education research.

Most importantly, the research methodology and the statistical results described here are proven to be educationally significant and practicable. **The AEI project findings enable researchers, schools, and districts to conclude that the results of AEI have provided**

³ see technical report, section 1E

significant support for the hypothesis that the drama plus drama integrated social studies classes enhance both social studies understanding and ELA skills.

Statistically controlled treatment-control comparisons of social studies and ELA achievement presented here are *statistically significant* because the results are extremely unlikely to be due to chance. Yet the judgement of causal impact can best be made when the detailed optimal conditions for program development align positively. **This study brings together a chain of unmistakable evidence for program effectiveness based on substantial findings of authentic and rigorous teacher training, quality and consistency of student work documentation, scoring reliability, participant response, demographically controlled test results, and inter-correlational measures of program cohesiveness, which all converge in this federally supported arts-in-education model development project.** Thus, the researchers are willing to judge the chain of linked factors in the AEI project as causally related and therefore worthy of further investment in larger scale replication.

There are some limitations to be addressed in the next stage of replication—larger sample sizes, more refinements to the data collection processes, more consistent and extensive participation of all treatment schools leading to higher and more uniform compliance with intervention practices, and examining the relationships between classroom- and school-level fidelity measures and student outcomes—**yet it is the judgement of the PI and the research team that these changes would be only more likely to detect even more precise effects of the AEI program results, its range of adaptability to other school populations, thereby increasing generalizability and adaptability of program design and findings.**

For school leadership, arts organizations, teachers, parents, and children, the benefits of the AEI curriculum intervention mirrors significantly the impact of theater on understanding of history, whether it is a production of *Hamilton* on Broadway or an original scene written and acted by middle school students guided by their classroom teachers and professional teaching artists.

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