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Eastern Suffolk BOCES Creative Classroom Collaboratives: Creativity, Competence, and Confidence (C3²)

Final Evaluation Findings

SUBMITTED TO:
Loretta Corbisiero
Project Director

metis associates

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Introduction

Background

Creative Classroom Collaboratives: Creativity, Confidence, & Competence

The *Creative Classroom Collaboratives: Creativity, Confidence, & Competence* (C3²) project was designed to assist Title I schools in integrating the arts into 4th and 5th grade classroom instruction for more inclusive learning and development of 21st Century skills. The C3² project was designed based on an earlier iteration of the project (C3), which was implemented in 2nd – 4th grade classrooms in two Long Island, New York school districts from 2012-2015.¹ Funded through a federal Arts in Education Model Development and Dissemination (AEMDD) grant, the Eastern Suffolk Board of Cooperative Educational Services (ESBOCES) partnered with local arts and cultural organizations and high-poverty schools in the South Huntington (SHUFSD) and Patchogue-Medford (PMUFSD) Union Free School Districts on Long Island, New York to implement C3². Through this grant, teaching artists partnered with school-based arts and classroom teachers in developing arts integration curricula and to form peer-to-peer communities of practice for sustaining quality in their work. The grant project ran from 2014-2018, with 2014-2015 used as a planning year, and 2015-2016, 2016-2017, and 2017-2018 as implementation years. During the planning year, the implementation team secured partners and refined the program model. Additionally, Metis evaluators collaborated with C3² project staff to develop school staff surveys and 21st Century skills assessment rubrics to measure effects of program participation. During the 2015-2016, 2016-2017, and 2017-2018 school years, teaching artists collaborated with classroom teachers to provide arts-integrated academic instruction using various arts disciplines. Students participated in arts-integrated instruction in combinations of artistic modalities (i.e., visual arts, dance, theater, music) for five-week residencies and were then engaged in another modality, ensuring that they experienced a variety of artistic disciplines and academic content area² combinations over time. C3² utilized a combination of arts integration approaches, in which instruction was centered on a work of art, such as a live performance or exhibit at a museum, and students were encouraged to ask questions, explore concepts that overlapped between the content and artistic work, and create projects that reflected their understanding of new concepts. Students, teachers, and teaching artists worked together throughout each residency to follow a line of inquiry, to identify meaningful aspects of a work of art, and to apply their understanding to a culminating activity that made their learning visible to others.

The Eastern Suffolk BOCES Arts-in-Education

The Eastern Suffolk BOCES Arts-in-Education (AIE) service is committed to the role that the arts play in the education of the whole child by providing programs with visiting experts or BOCES personnel that enrich or augment the usual activities found in regular, special, and talented classrooms or through professional development. The arts and artists presented through AIE programs promote personal growth and community understanding by enabling students to process and create meaning from what they learn about people, events, and places. The experts are specialists who offer experiences not usually found in regular school programs and provide relevant and integral connections to classroom work that support National Core Arts Standards, NY State Learning Standards for the Arts, as well as align with the, NY State Learning Standards and core curriculum. It was through the ESBOCES Arts in Education program that the arts, educational, and professional development resources were provided to all participants.

¹ See the September 2015 Year 4 C3 Evaluation Report by Metis Associates.

² As goal of C3² was to integrate the arts across all 4th and 5th grade content areas.

Goals & Activities

Ultimately, the C3² model aimed to improve outcomes for both teachers (e.g., improved instructional practices and 21st Century skills³) and students, including developing students' 21st Century skills and academic achievement. To that end, certain aspects of instruction were included in the implementation of C3², such as reinforcing curricular concepts across academic content areas and artistic disciplines; facilitating collaboration between classroom teachers, specialists (e.g., librarians, physical education teachers, in-school music and art teachers), and teaching artists for meaningful use of cultural resources; and analyzing formative and summative learning to account for the needs of high-risk students.

Metis Associates, an independent research and evaluation consulting firm, was contracted to design and conduct the evaluation of the C3² program. This report describes implementation and outcome findings from the initial planning year and the three implementation years of C3². The report includes: 1) a description of the research methods and the implementation of the project; 2) outcome findings for teachers, specialists, and teaching artists; 3) outcome findings for students and for the schools overall; 4) a summary of the project's strengths and challenges; and 5) an analysis of the implications of the evaluation findings.

³ 21st Century skills are defined as skills that students need in order to be successful in 21st Century education and employment. Four skills that are commonly seen as imperative in the 21st Century include creativity, collaboration, communication, and critical thinking.

Research Methods

In order to examine the effectiveness of C3², Metis Associates, an independent research and evaluation consulting firm, was contracted to develop the evaluation design for the AEMDD grant proposal and implement the experimental outcome study of C3².

Study Design

During the planning year, two school districts (PMUFSD and SHUFSD) were recruited to participate by the C3² Project Director and the Arts-In-Education Coordinator at ESBOCES. To determine group assignment (treatment or control) a stratified (by district) random assignment process took place. Once the eight schools within the districts were identified and agreed to participate (six from PMUFSD and two from SHUFSD), three schools from PMUFSD were randomly assigned to the treatment group and three to the control group. Likewise, one of the schools from SHUFSD was assigned to the treatment and one to the control group. In order to do this, schools were first listed on a spreadsheet in no particular order. Second, a random number between 0 and 1 was generated using the RAND function in Microsoft Excel. Next, these random numbers were then sorted from smallest to largest and assigned to the schools in the list. Schools with lower numbers were identified as treatment schools and schools with higher numbers were identified as control schools. School size and student demographics, such as economic disadvantage and English language proficiency, were similar across treatment and control groups (see Table 1). Students in the treatment schools received all aspects of the program, while students in the control schools participated only in culminating performances and evaluation activities.

The evaluation of C3² began in the planning year (2014-2015) and continued through the end of the project, utilizing a range of data collection instruments designed to assess and inform project implementation and outcomes. It was hypothesized that the program would have positive effects on treatment students, staff, and schools overall. Specifically, it was theorized that the program would positively influence treatment students' achievement and 21st Century skills, educators' collaborative skills and teaching practices, and school-wide integration of arts education strategies. Evaluation measures included teacher, specialist, and principal surveys; teacher and specialist focus groups; teacher and specialist pre- and post-rubrics; and student pre- and post-rubrics and unit reflections. Student achievement data were also collected and analyzed.

After each implementation year of C3², Metis analyzed the evaluation data to assess project outcomes and identify lessons learned to inform subsequent implementation and dissemination efforts. Metis assessed effects of the program on treatment schools, teachers, and students, both over time and relative to control school participants, to determine the extent to which project goals and objectives were achieved.

Research Participants

Schools

As noted above, four schools (three from PMUFSD and one from SHUFSD) were assigned as treatment schools, and the remaining four eligible schools (three from PMUFSD and one from SHUFSD) were assigned as control schools. All treatment and control schools qualified for federal Title I funding because they serve students from low-income families. As shown in Table 1, overall similar proportions of treatment and control school students were eligible for free or reduced-price lunch through the federal

National School Lunch program.⁴ Likewise, similar percentages of treatment and control school students were identified as having limited English language skills, with one school in both the treatment and comparison groups having a large population of English language learners (33% and 27%, respectively).

Table I. Demographics of C3² Treatment and Control Schools in 2017-2018⁵

School	School District	School Demographic Data				
		Grade Levels	Title I	Total Students	% Economically Disadvantaged	% English Language Learners
Treatment School 1	PMUFSD	K-5	Yes	593	61%	15%
Treatment School 2	PMUFSD	K-5	Yes	534	64%	33%
Treatment School 3	PMUFSD	K-5	Yes	375	65%	15%
Treatment School 4	SHUFSD	3-5	Yes	667	57%	21%
Control School 1	PMUFSD	K-5	Yes	515	50%	11%
Control School 2	PMUFSD	K-5	Yes	326	60%	27%
Control School 3	PMUFSD	K-5	Yes	515	58%	20%
Control School 4	SHUFSD	3-5	Yes	655	51%	16%

*Source: New York State Education Department School Report Cards 2017-2018

Note: Data presented are for the full school populations, and not just for the grade levels served by the grant.

Data Sources

As described earlier, Metis evaluators collaborated with C3² project staff during the planning year to develop school staff surveys and 21st Century skills assessment rubrics to measure effects of program participation. Surveys were designed to measure teacher and specialist attitudes toward collaborative instruction and use of cooperative instruction skills. Rubrics were developed to measure students', teachers', and specialists' competencies in the four 21st Century skills referred to as the "4Cs": *creativity and innovation, collaboration, critical thinking and problem solving, and communication*. Finally, student demographic and achievement data were collected from the participating school districts to examine the effect of the program on student academic outcomes.

Surveys

In each implementation year, Metis evaluators administered pre- (fall) and post- (spring) surveys and pre- and post-rubrics⁶ to classroom teachers and specialists in both the treatment and control schools. In order to measure progress made toward the project goals, survey data were used to develop composite measures of participating teachers' and specialists' attitudes toward and use of collaborative instructional practices. Responses to individual survey items were also tabulated and compared between treatment and control group teachers and specialists to ascertain project impacts. Locally developed rubrics were used to measure the 21st Century skills of participating teachers, specialists, and students. Treatment and control group teachers and specialists completed the staff surveys and rubrics at the beginning and end of

⁴ A common proxy for low-income status

⁵ Demographic data were similar across all years of the project.

⁶ The survey and rubric were combined into one evaluation packet in 2017-2018 to reduce teacher and specialist burden.

each implementation year. Presented in Tables 2, 3, and 4 are the survey and rubric response rates for the 4th and 5th grade teachers and specialists who participated in the project each year.

Table 2. Teacher and Specialist Survey Response Rates: 2015-2016

	Survey			Rubric		
	Pre	Post	Matched	Pre	Post	Matched
Treatment						
Teacher	98% (50/51)	47% (24/51)	47% (24/51)	96% (49/51)	63% (32/51)	61% (31/51)
Specialist	89% (24/27)	26% (7/27)	26% (7/27)	85% (23/27)	22% (6/27)	22% (6/27)
Total	95% (74/78)	40% (31/78)	40% (31/78)	92% (72/78)	49% (38/78)	47% (37/78)
Comparison						
Teacher	90% (43/48)	52% (25/48)	44% (21/48)	71% (34/48)	54% (26/48)	38% (18/48)
Specialist	81% (21/26)	12% (3/26)	12% (3/26)	31% (8/26)	12% (3/26)	0% (0/26)
Total	86% (64/74)	38% (28/74)	32% (24/74)	57% (42/74)	39% (29/74)	24% (18/74)

Table 3. Teacher and Specialist Survey Response Rates: 2016-2017

	Survey			Rubric		
	Pre ⁷	Post	Matched	Pre	Post	Matched
Treatment						
Teacher	32% (20/62)	56% (35/62)	24% (15/62)	50% (31/62)	52% (32/62)	35% (22/62)
Specialist	21% (4/19)	32% (6/19)	16% (3/19)	16% (3/19)	26% (5/19)	21% (4/19)
Total	30% (24/81)	51% (41/81)	22% (18/81)	42% (34/81)	46% (37/81)	32% (26/81)
Comparison						
Teacher	41% (27/66)	38% (25/66)	24% (16/66)	50% (33/66)	35% (23/66)	35% (23/66)
Specialist	48% (16/33)	27% (9/33)	18% (6/33)	24% (8/33)	18% (6/33)	12% (4/33)
Total	43% (43/99)	32% (34/99)	22% (22/99)	41% (41/99)	29% (29/99)	27% (27/99)

Table 4. Teacher and Specialist Survey Response Rates: 2017-2018⁸

	Survey/Rubric		
	Pre	Post	Matched
Treatment			
Teacher	64% (33/52)	60% (31/52)	44% (23/52)
Specialist	30% (10/33)	15% (5/33)	15% (5/33)
Total	51% (43/85)	42% (36/85)	33% (28/85)
Comparison			
Teacher	61% (39/64)	64% (41/64)	53% (34/64)
Specialist	52% (13/25)	32% (8/25)	28% (7/25)
Total	58% (52/89)	55% (49/89)	46% (41/89)

⁷ As some teachers and specialists completed only the post-survey/post-rubric in 2015-2016 and only the pre-survey/pre-rubric in 2016-2017, these data were combined to create baseline data for 2016-2017 analyses. They are heretofore referred to as “2015-2017” results.

⁸ The survey and rubric were combined into one evaluation packet in 2017-2018 to reduce teacher and specialist burden.

Metis also administered pre- (fall) and post- (spring) surveys to the teaching artists who participated each year in order to measure progress made over time in their use of and attitudes toward collaborative instructional practices. Presented in Table 5 are the survey response rates for the teaching artists who participated in the project.

Table 5. Teaching Artist Survey Response Rates

2015-2016			2016-2017			2017-2018		
Pre	Post	Matched	Pre	Post	Matched ⁹	Pre	Post	Matched
6	4	4	6	6	--	5	5	4

Additionally, a school leader survey was created to collect information regarding leaders' perceptions of the project as well as the connections they made with local cultural organizations. Metis invited school leaders to complete the school leader survey in the spring of each implementation year. The survey was collected from seven of eight school leaders (three treatment and four control) in 2015-2016, one treatment school leader in 2016-2017, and three treatment school leaders in 2017-2018.

21st Century Skills Student Rubrics and Unit Reflections

To measure change in 21st Century skills among students in the treatment and control groups, classroom teachers completed the rubrics for each of their respective students at the beginning and end of each project implementation year. Additionally, student unit reflections were collected from treatment students in the winter and spring of each implementation year in order to gather data on students' perspectives of their own 21st Century skills. Response rates for the student rubrics and unit reflections are presented in Table 6.

Table 6. Response Rates for Student Data by Implementation Year, Study Group, and Instrument

School	2015-2016	2016-2017	2017-2018
Treatment School 1			
Student Rubric (Matched)	94% (176/188)	97% (183/188)	27% (50/188)
Student Unit Reflection: Fall	--	84% (157/188)	84% (158/188)
Student Unit Reflection: Spring	75% (141/188)	91% (171/188)	95% (178/188)
Treatment School 2			
Student Rubric (Matched)	70% (169/240)	99% (195/197)	23% (46/197)
Student Unit Reflection: Fall	--	83% (163/197)	81% (159/197)
Student Unit Reflection: Spring	65% (155/240)	100% (197/197)	29% (57/197)
Treatment School 3			
Student Rubric (Matched)	52% (93/180)	85% (105/123)	0% (0/123)
Student Unit Reflection: Fall	--	50% (62/123)	23% (28/123)
Student Unit Reflection: Spring	44% (80/180)	50% (62/123)	0% (0/123)
Treatment School 4			
Student Rubric (Matched)	57% (342/600)	37% (165/451)	29% (133/451)
Student Unit Reflection: Fall	--	53% (239/451)	38% (173/451)

⁹ Pre- and post-surveys from teaching artists in 2016-2017 were anonymous and, thus, could not be matched.

School	2015-2016	2016-2017	2017-2018
Student Unit Reflection: Spring	49% (292/600)	78% (352/451)	61% (273/451)
Treatment Group Total			
Student Rubric (Matched)	65% (780/1208)	68% (648/959)	24% (229/959)
Student Unit Reflection: Fall	--	65% (621/959)	54% (518/959)
Student Unit Reflection: Spring	55% (668/1208)	82% (782/959)	53% (508/959)
Control School 1			
Student Rubric (Matched)	70% (124/178)	53% (90/170)	12% (20/170)
Control School 2			
Student Rubric (Matched)	93% (111/119)	70% (83/119)	66% (78/119)
Control School 3			
Student Rubric (Matched)	71% (116/164)	87% (141/163)	42% (69/163)
Control School 4			
Student Rubric (Matched)	76% (380/500)	63% (309/489)	30% (146/489)
Control Group Total			
Student Rubric (Matched)	76% (731/961)	66% (623/941)	33% (313/949)

Student records

In spring 2017 and spring 2018,¹⁰ Metis collected unit-record data files containing demographic information and state assessment data for treatment and control students in each of the two participating school districts. Specifically, de-identified data from the New York State (NYS) ELA and Math tests, which are administered annually to students in grades 3-8, were collected for students in grades 4 and 5—the C3² participating grades. Information on the data collected for C3² treatment and control students is provided in Table 7.

Table 7. Students with State Assessment Data

School		Spring 2017	Spring 2018	Matched 2017-2018
Treatment School 1				
	ELA	47	44	9
	Math	46	47	9
Treatment School 2				
	ELA	65	63	9
	Math	67	72	26
Treatment School 3				
	ELA	24	24	0
	Math	25	23	3

¹⁰ Unit-level data files were not collected in spring 2016 due to turnover in project-level staff. Additionally, note that large numbers of parents opted their children out of the testing in both years in which unit-level data were collected.

School		Spring 2017	Spring 2018	Matched 2017-2018
Treatment School 4				
	ELA	293	267	104
	Math	289	284	107
<i>Treatment Group Total</i>				
	ELA	429	398	122
	Math	427	426	145
Comparison School 1				
	ELA	34	56	12
	Math	36	58	13
Comparison School 2				
	ELA	33	4	4
	Math	33	5	5
Comparison School 3				
	ELA	23	2	2
	Math	289	107	5
Comparison School 4				
	ELA	297	223	81
	Math	233	232	86
<i>Comparison Group Total</i>				
	ELA	387	285	99
	Math	591	402	109

Implementation of C3²

Overview

The C3² project comprised partnerships between ESBOCES, teaching artists, and local cultural organizations to offer performances, museum experiences, and residencies to 4th and 5th grade students in the Patchogue-Medford (PMUFSD) and South Huntington (SHUFSD) school districts. The C3² model for arts integration involves participating teachers and teaching artists collaborating to create and execute student-focused projects that integrate 21st Century learning through the arts. Students learn that dancing, singing, acting, writing, and developing visual artworks help them to expand on their own critical thinking and interpretive abilities, utilizing skills that are transferable to all subject areas. These projects are linked to the New York State and National Core Arts Standards, as well as national Common Core Learning Standards.

Designed for participating educators to form peer-to-peer communities of practice with a cohort of teaching artists, the four-year project uses collaborative planning time to practice and model collaborative instructional strategies (i.e., lesson planning and co-teaching), as well as to reflect on and adjust instructional approaches over time. Multiple peer-to-peer professional development sessions, as well as annual Summer Institutes (both described in more detail below), offer these teachers and teaching artists opportunities to acquire the knowledge, tools, materials, and experience to teach arts-integrated lessons, as well as to learn how to assess educational programs developed with cultural partners. The project also provides resources for local cultural organizations and teaching artists that are not directly involved in project implementation to use instructional tools to connect and develop partnerships with participating schools. The program was intended to help classroom teachers and students develop and strengthen critical skills for collaborating with teaching artists and for identifying, selecting, and engaging two cultural partners (i.e., a performance troupe or museum) each year. Live performances, site-based art installations, or museum visits are designed to reinforce the interdisciplinary teaching and arts integration going on in the classroom.

To help share the tools for teaching and learning throughout the New York State and national education communities, a web-based toolkit comprised of model lessons, assessment tools and protocols, images, and video clips is publicly accessible via the C3² website (www.creativec3.org).

Project Partners

To achieve the goal of fostering 21st Century skills for students and their teachers through creativity and collaboration as well as reinforcing competence and confidence in arts-based teaching, the C3² project's administrative staff teamed with teaching artists, cultural organizations, and Metis evaluators. Below is a list of the project's partners.

Administrative Team

The administrative team worked collaboratively to facilitate teachers' and teaching artists' development and implementation of two arts-integrated units of study (five weeks each) during each school year. To reach the project's goal, the administrative team developed and disseminated effective materials, practices, and processes through professional development and the C3² website. The administrative team consisted of: a Project Director who oversaw the resources and policies that guided the project; a Project Coordinator who managed schedules, supplies, personnel, and daily communications; a Curriculum

Coordinator who designed and implemented the framework for student-centered engagement between arts, education, and management participants; and a Web Content Manager who worked with all partners to bring real-time sharing of the units and activities to the website.

Arts Education Partners

Arts education partners included teaching artists who participated as a cohort with teachers in C3² (professional writers and visual/performing artists) and cultural partners who were enlisted by the teaching artist and teacher cohorts to be included in a unit of study. Cultural partners included individual artists, education personnel from art/science/historic organizations, and artists from performing arts companies. All of the arts education professionals brought unique skills that blended artistic and curricular ideas into dynamic learning experiences for learners of all ages.

Teaching Artists

C3² teaching artists collaborated with classroom teachers and specialists in treatment schools to develop and implement two five-week arts-integrated units of study during each project implementation year. These artist residencies were designed to promote creative expression in teachers and students through engagement in projects aligned to a well-rounded education, including core academic curricula and the arts. School arts specialists, such as music, visual arts, and physical education teachers were engaged as partners in the peer-to-peer planning as collaborating instructors or as curriculum advisors. Teaching artists included: Paul Rodriguez, an internationally acclaimed author illustrator; Dafna Soltes Stein, a performance artist in drama, storytelling, and dance; Lucienne Pereira, an internationally exhibited multi-disciplinary visual artist; Kendra Mace, an award winning international dancer and choreographer, Danielle Marie Fusco, dancer, choreographer, and aerialist who has toured throughout the world, and Beth Giacummo, an internationally exhibited visual artist, Museum Director, and Curator.

Cultural Partners

Over the three implementation years, treatment schools partnered with a total of 17 unique cultural arts organizations. These included: DataMomentum, Nostrand Theater, Tilles Center, the Westhampton Beach Performing Arts Center, Old Bethpage Village Restoration, Long Island Museum, Child's Play Touring Theater, Pint Size Productions, Dancing Classrooms, DCA Productions, Heckscher Museum, Cirque-tacular, Patchogue Arts Council, Parrish Art Museum, Patchogue Theater for Performing Arts, Patchogue Public Library and the Watermill Center.

During each implementation year, teachers in treatment schools introduced students to several different performances at various cultural organizations throughout the region. During the Summer Institutes of 2016 and 2017, teachers in treatment schools selected focal art performances. From these performances, teachers were then able to work with the teaching artists to develop a five-week residency, aligning curricula with the performance through the teaching artists' areas of expertise. Teachers and students attended off-site performances at many of these cultural organizations. Several teachers in the treatment schools selected an in-school presentation of *Sticks & Stones* by Lyle Cogan.

Educator Professional Development

Summer Institute

During each summer, teachers and teaching artists collaborated during a three-day intensive training and planning session. Participants explored artistic and educational resources, developed learning objectives, synthesized artistic and curricular elements for units of study, and determined the best approaches to

assessing student learning as well as their own professional growth. The collaborative approach used for these institutes encouraged every participant to understand how 21st Century skills can be developed for adults and children alike.

Peer-to-Peer

Peer-to-peer (P2P) work groups were modeled after the Empire State Partnership's peer-to-peer methods, which were developed with funding from the NYS Council on the Arts. Teacher teams¹¹ from each school collaborated with teaching artists during the P2P sessions. The teachers and teaching artists incorporated assessment of professional practice with the documentation and review of student work. The goals for the P2P sessions, which occurred three times per year, included:

- forming peer identities and establishing assessment goals,
- identifying shared vocabulary and engagement practices,
- tackling areas of challenge and potential, and
- reviewing and comparing assessment goals with the Summer Institute outcomes and with anticipated outcomes for the year to come.

The P2P meeting held on May 21 & 22, 2018 was conducted by the Patchogue Arts Council to explore the arts in a community that has been revitalized through the arts. Attendees explored the Patchogue Arts Council Gallery, Patchogue Cinema, Patchogue Theater for Performing Arts, and the Patchogue Public Library, experiencing the art and opportunities within the community.

The final P2P meetings in 2016 and 2017 were held at the Long Island Museum and Heckscher Museum respectively. As with the 2018 meeting, participants reflected on learning from the previous year, explored new methods for engaging with a range of artistic disciplines, and began plans for selecting cultural partners for the year to come.

Units of Study

Arts and Cultural Engagement

During each school year, residencies consisting of five-week units of study were designed and implemented in Grade 4 and 5 classrooms during the fall and spring semesters. Performances or cultural organization site visits served as catalysts for the study of curriculum-based themes or topics. The in-school or community-based performances and visits were often scheduled later in the five-week residency. The line of inquiry in the unit plan determined when the live experience was most appropriate to student learning, rather than as a finale. Flexibility around sequencing and an emphasis on live experiences allowed teachers to envision infinite approaches to arts integration and to enlisting cultural partners for future learning after the project was completed. Examples of the arts and cultural engagement are below.

Martial Artists and Acrobats of Tianjin. These Chinese artists are skilled in acrobatics, circus acts, illusions, and martial arts. Accompanied by traditional Chinese music, the troupe performed an array of acrobatic stunts, feats of balance, juggling acts, contortion tricks, and martial arts. Grade 4 students experienced this performance as part of their study of how beliefs and social practices in a culture can shape expressions in dance.

¹¹ Specialists were intended to participate in the P2P sessions but, due to substitute teacher shortages in the districts, were usually unable to attend the sessions.

The Art of Circus. CIRQUE-TACQULAR, internationally renowned circus artists, performed acrobatics inspired by visual art masterpieces during “The Art of Circus.” Grade 4 and 5 teachers used the performance as a springboard for projects that explored artistic and scientific concepts of: mapping and interpretation of visual information, simple machines and kinetics, and ways that nutrition can impact physical activity.

I Have a Dream. The historical impact of Dr. Martin Luther King, Jr. was chronicled in a compelling dramatization performed by the Virginia Repertory Theatre. Grade 5 students explored their personal dreams, as well as the importance of the First Amendment.

Dancing Classroom. Dancing Classrooms teaches social-emotional literacy through ballroom dancing. Through dance, Grade 5 students cultivated essential life skills and worked on overcoming their insecurities across content areas.

Long Island Museum. At the Long Island Museum, Grade 4 students worked on developing a deeper understanding of Long Island heritage and colonial times by exploring the museum’s American art, artifacts and carriages. One group of students made connections between geographic areas and what it means to live in and around a specific geographical aspect of the state: New York City, the mountains, bodies of water, and the plains of Long Island. Another group analyzed the difference in daily life for children in colonial America compared with life today through role playing and assimilating the difference between past and present.

Retumba! Retumba! performers are a group of culturally diverse women who strive to help others recognize the familiar and similar aspects of different cultures. The interactive, vibrant performance enhanced Grade 5 students’ exploration of our global community by comparing dances that are culturally inspired to pop-culture examples and choreographing and performing their own variations.

Heckscher Museum of Art. Through its exhibits and collections, the Heckscher Museum of Art encouraged a broader understanding of our past and present. Grade 5 students immersed themselves in the museum’s exhibit *From Frankenthaler to Warhol: Art of the '60s and '70s* to inspire the expression of their individuality in self-portraits and storytelling analysis of the book *Fish in a Tree* by Lynda Mullaly Hunt.

PUSH Physical Theatre. Performances by PUSH Physical Theater, masters of physical storytelling, were used as springboards for Grade 4 and Grade 5 science (i.e., animal classification and simple machines), mathematics (i.e., increase/decrease) and social studies (i.e., American Revolution and US Government) projects.

David Gonzalez. Grade 4 and Grade 5 teachers collaborated with David Gonzalez, who used drama and music to tell stories. Arts-integrated projects were designed to encourage students to use their bodies and voices to embody a poem, perform original legends and myths, and take a closer look at how American history and the Westward Expansion might be valuable to our current lives.

Rock The Presidents. Just in time for the 2016 Presidential Election, Rock the Presidents by Childsplay offered Grade 4 and Grade 5 students a non-partisan exploration of 44 of our country’s presidents. The production inspired units on character and leadership, as well as persuasive speaking.

Sticks and Stones. Lyle Cogen’s one-woman show, Sticks and Stones, tackled bullying and everyday life skills. Arts-integrated projects for Grade 4 and Grade 5 students reinforced anti-bullying behavior, while enriching English Language Arts learning through narrative sequence and character development in reading, writing, speaking, and listening.

Mufaro’s Beautiful Daughters. Grade 4 teachers created a cross-curricular project, combining social studies, science, visual arts and music lessons, to inspire their students to write African folktales, such as Mufaro’s Beautiful Daughters.

Old Bethpage Village Restoration. A trip to Old Bethpage Village Restoration culminated Grade 4 students' projects on Colonial America. During visual arts and dramatic arts projects in the classroom, students compared life in the city and in the country during colonial times. Additionally, students compared the values of colonial times with those of the present day.

Freedom Train. Freedom Train, which tells the story of Harriet Tubman and the Underground Railroad, helped to bring the past alive for Grade 4 and Grade 5 students. Visual and performing arts activities were integrated into character education, social studies, science and mathematics curricula.

Unit Planning

The process of unit planning was tuned to student needs and interests, curriculum, and instruction in individual classrooms. Classroom teachers, specialists, and teaching artists formed flexible teams that reinforced the 4Cs of collaboration, communication, critical thinking, and creativity in practice. Each unit integrated grade level curricula, a teaching artist's residency, and a live performance or cultural organization site visit. The goal of these units was to promote artistic exploration by the students, as well as strengthen their 21st Century skills and core subjects of ELA and mathematics. The unit planning tool, Pecha Kucha presentations, and peer-to-peer community practices were essential elements for developing effective plans. Unfortunately, due to a district-wide shortage of substitute teachers throughout all three implementation years, specialists were often unable to attend P2Ps and participate in unit planning, as they lacked coverage to do so. Thus, unit planning was most often completed by teaching artists and teachers only.

Teaching Artist, Teacher, and Specialist Outcomes

Effects on Teaching Practices

To assess project staffs' capacity to use collaborative and creative practices to increase students' understanding of the curriculum, online surveys were administered each implementation year to teaching artists, classroom teachers, and school-based specialists. Findings from these surveys are presented in the following section.

Teaching Artists. Teaching artist surveys were collected in all three implementation years to gather data on their practices and experiences. Overall, teaching artists reported using and understanding collaborative pedagogical practices on both the pre- and post-survey. Survey results from 2015-2016 showed that the six teaching artists rated their collaborative pedagogical practices as 3.5, on average¹² (on a scale of 1 [Never] to 5 [Always]) on the pre-survey, and the four teaching artists who completed the post-survey had a mean rating of 3.0 in this category. On the 2016-2017 pre-survey, the six teaching artists rated themselves as 4.2, on average, on their use of collaborative pedagogical practices and as 3.8, on average, on the post-survey. Similarly, in 2017-2018, the four teaching artists who completed both the pre- and post-surveys reported an average score of 3.8 on the pre-survey and 3.3 on the post-survey when asked about their use of collaborative pedagogical practices.¹³

Classroom Teachers and Specialists. To obtain information on how staff knowledge of arts integration strategies changed over time, online surveys were administered each implementation year to treatment staff, including teachers and specialists, completed online surveys to obtain information on how staff knowledge of arts integration strategies changed over time. In 2015-2017,¹⁴ 29% of staff (N=9) with matched pre/post survey data reported increases in their use and understanding of collaborative pedagogical practices, 35% (N=11) showed no change, while 35% (N=11) reported decreases in this area (see Figure 1).¹⁵

Survey data show that of the 27 staff who completed these items on the pre- and post-surveys in the third year of implementation (2017-2018), 26% of staff (N=7) reported increases in their use and understanding of collaborative pedagogical practices, 33% (N=9) showed no change, while 41% (N=11) reported decreases in this area.

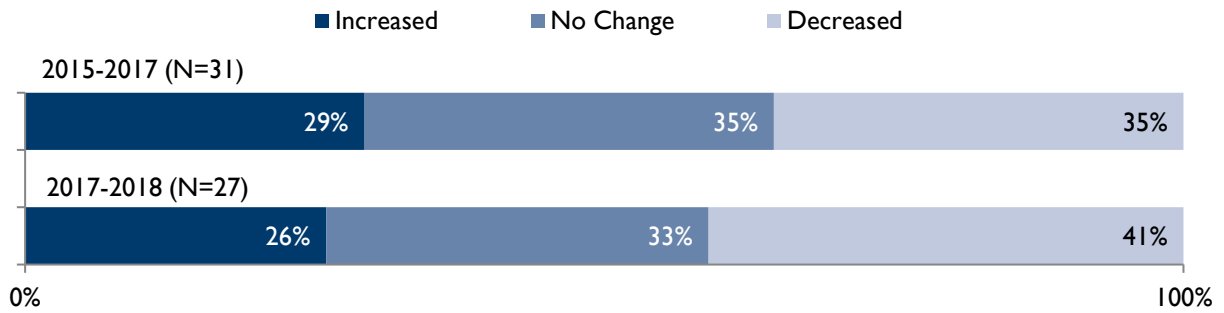
¹² Due to the small sample of teaching artists, means were calculated in lieu of percentages.

¹³ Please note that the small sample size may limit the generalizability and comparability of these results.

¹⁴ Teacher and specialist survey data from 2015-2016 and 2016-2017 were combined and are thus referred to as 2015-2017 data throughout this report.

¹⁵ As some teachers and specialists completed only the post-survey/post-rubric in 2015-2016 and only the pre-survey/pre-rubric in 2016-2017, these data were combined to create baseline data for 2016-2017 analyses. They are referred to as "2015-2017" results.

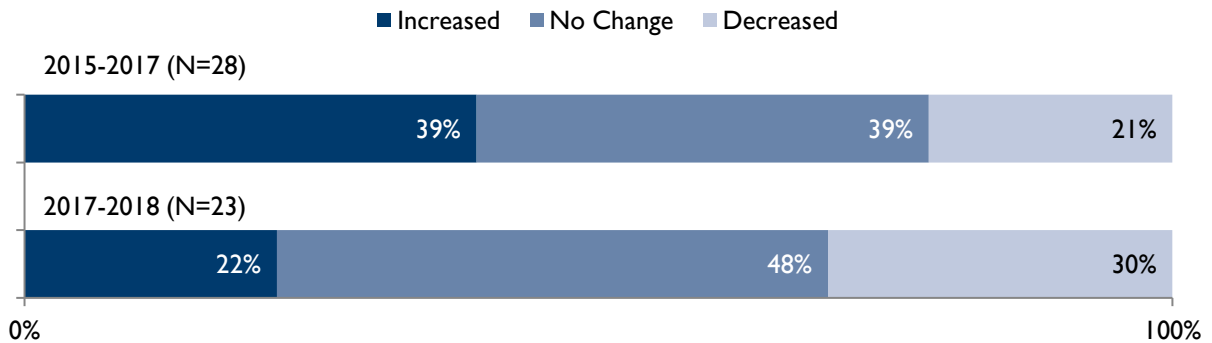
Figure 1. Percent of Teachers & Specialists Reporting Increases in Use & Understanding of Collaborative Pedagogical Practices



Of the 28 treatment teachers who completed both the pre- and post-surveys in 2015-2017, 39% (N=11) reported increased knowledge of arts integration strategies, 39% (N=11) reported no change, and 21% (N=6) reported decreased knowledge (see Figure 2).

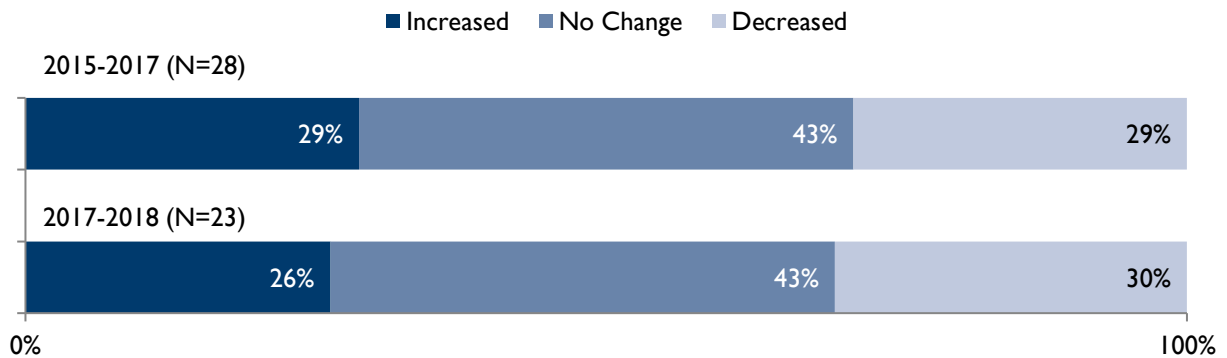
Of the 23 treatment teachers who completed both the pre- and post-surveys in 2017-2018, 22% (N=5) reported increased knowledge of arts integration strategies, 48% (N=11) reported no change, and 30% (N=7) reported decreased knowledge.

Figure 2. Percent of Teachers & Specialists Reporting Increased Knowledge of Arts Integration Strategies



Results of the matched pre- and post-survey data from 2015-2017 showed that 29% (N=8) expressed increased use of digital portfolios, 43% (N=12) showed no change, and 29% (N=8) expressed decreased use (see Figure 3). In 2017-2018, of the 23 treatment teachers with matched data, 26% (N=6) reported increased use of digital portfolios, 43% (N=10) reported no change, and 30% (N=7) reported decreases in this behavior.

Figure 3. Percent of Teachers & Specialists Reporting Increased Use of Digital Portfolios



A performance assessment form was created as a tool for school leaders to assess teachers’ creativity, collaboration, critical growth, and ownership and participation during C3². In 2015-2016, this observation rubric was not collected, as it was still in the process of being refined. During the 2016-2017 school year, due to the many competing responsibilities of busy school leaders, the professional performance assessment was completed by only one school leader in June 2017.

In lieu of the performance assessment data, school leader surveys were revised to include questions regarding teachers’ skills related to collaboration, arts integration, and digital portfolios. Three of the four treatment school leaders completed the survey in June 2018. All three treatment school leaders reported that they had observed teachers using collaborative pedagogical practices and arts integration strategies at least once per month. When asked how frequently they had observed teachers using digital portfolios and social media to reflect on and adjust pedagogical competencies, one school leader reported that s/he had “never” observed this, one school leader reported “rarely (less than once a month)” observing this, and one school leader reported having “occasionally (monthly)” observed this strategy. On teacher surveys, a range of 22% to 26% of classroom teachers reported increases in the use of each of these strategies over the course of the school year, corroborating school leader survey findings that teachers did not demonstrate strong growth in this area.

Additionally, in the spring of 2018, the project coordinator conducted observations of teachers in order to supplement the low school leader survey response rate. Data from these observations showed:

Collaboration

Teachers and teaching artists collaborated to develop unit plans. Examples of these units included: environmental sustainability, self-worth, advocacy, civil rights, social etiquette, discrimination, bullying. Teaching teams also worked closely to select performances, identify cultural venues, and develop culminating presentations.

Arts Integration

Teaching teams offered students unique opportunities for self-expression, discovery, and evaluation by designing lessons that inspired creativity, critical thinking and problem solving through unique formats, such as mock student rallies, creative art projects, and role-playing. Teaching artists, teachers, and administrators worked to provide appropriate locations and facilities for the residencies. Final student presentations were attended by parents and peers. Unit plans were created using artistic work to help reinforce student learning across curricula and spark discussions around real-world issues. Hands-on activities were implemented to combine curricula with process, critical thinking, and problem-solving skills.

Teachers' selection of cultural performance/experiences were also used to bolster their curricula and facilitate student understanding of the classroom material.

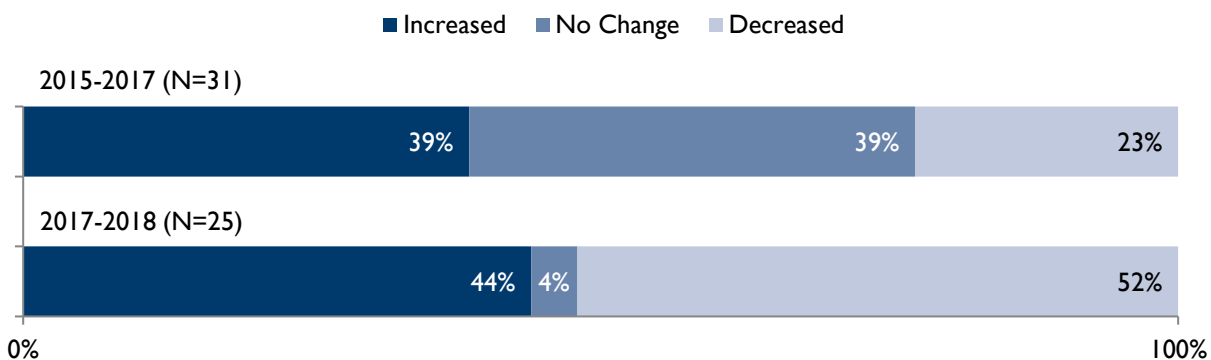
Digital Portfolios

Teaching teams developed digital portfolios in the form of Pecha Kuchas and presented them at the final P2P meetings. The Pecha Kuchas initiated peer discussion, validation and encouraged the project community to look to the future, share their strengths, and set upcoming goals. Presentation of these Pecha Kuchas also helped the teaching team identify instructional needs and solutions.

Effects on Professional Satisfaction

Of the 31 treatment teachers and specialists who completed pre- and post-surveys in 2015-2017, 39% (N=12) expressed increased professional satisfaction, while 39% (N=12) expressed no change, and 23% (N= 7) expressed decreased satisfaction (see Figure 4). Of the 25 staff who completed these items on the 2017-2018 pre- and post-surveys, 44% (N=11) reported increases in professional satisfaction, 4% (N=1) reported no change, and 52% (N=13) reported decreased professional satisfaction over time.

Figure 4. Percent of Teachers & Specialists Reporting Increased Professional Satisfaction



Pre- and post-surveys were also completed by teaching artists in each implementation year. In 2015-2016, teaching artists rated their overall professional satisfaction as a 9/0 (on a scale of 1 – 10) on the pre-survey and a mean of 9.25 on the post-survey. Teaching artists' mean overall professional satisfaction was 9.0 (on a scale of 1 – 10) on both the pre- and post-surveys in 2016-2017. Teaching artist survey scores were matched in 2017-2018, and results showed that their mean overall professional satisfaction improved by the end of that year, with a pre-score mean of 8.25 (on a scale of 1 – 10) and a post-score mean of 9.0.¹⁶ Overall, results indicated a high level of professional satisfaction amongst teaching artists.

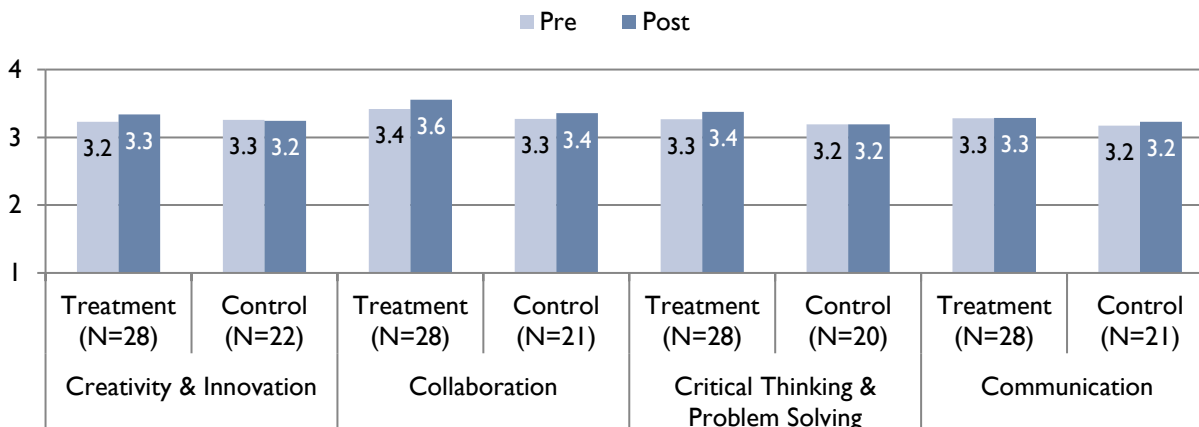
Effects on 21st Century Skills

Of the 28 treatment teachers and specialists who completed pre- and post-rubrics in 2015-2017, 61% (N=17) showed improved 21st Century skills and the remaining 39% (or 11 staff) showed decreased skills. Of the 43 staff who completed these items on the 2017-2018 pre- and post-surveys/rubrics, 60% (N=15) reported improved 21st Century skills, 8% (N=2) reported no change, and 32% (N=8) reported decreased skills (see Figure 5).

¹⁶ Please note that the small sample size may limit the generalizability and comparability of these results.

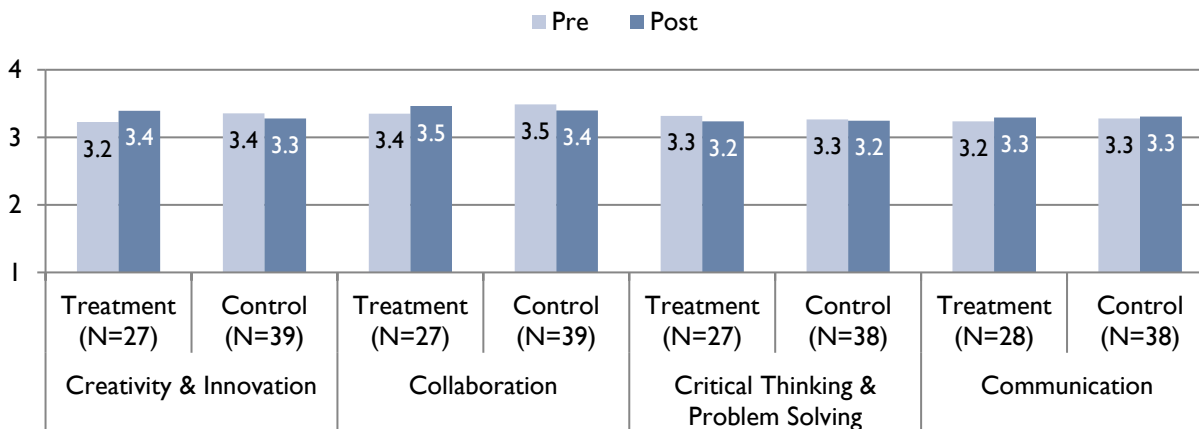
Overall, treatment teachers and specialists showed greater gains in 21st Century skills on the 2015-2017 rubrics than did control school teachers and specialists (see Figure 5). While both groups showed increases in almost all categories, treatment teachers and staff demonstrated higher post-scores in all categories, with the greatest difference shown in collaboration. No differences were statistically significant.

Figure 5: Teacher & Specialist
21st Century Skills Rubric Mean Scores 2015-2017



Again, in 2017-2018, treatment teachers and specialists demonstrated better 21st Century skills outcomes overall as compared to their counterparts at control schools (see Figure 6). While staff in control schools showed increased skills in one of the four categories, staff in treatment schools showed increased skills in three categories, with the most notable difference in creativity and innovation. No differences were statistically significant.

Figure 6: Teacher & Specialist
21st Century Skills Rubric Mean Scores 2017-2018



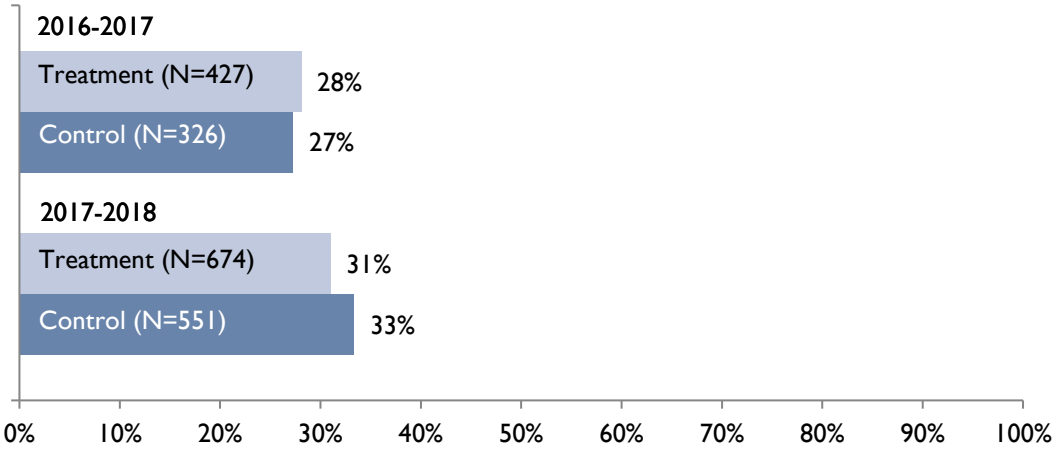
Student Outcomes

C3² ultimately aimed to impact on student outcomes. Specifically, the program strived to bolster treatment students' academic achievement (math and reading) and 21st Century skills through arts- integrated activities. In order to determine the extent to which the program met its goals related to student outcomes, Metis examined NYS Math and Reading Test data, as well as data from 21st Century skills student rubrics and unit reflections. The following sections describe findings related to these outcomes.

Effects on Academic Achievement

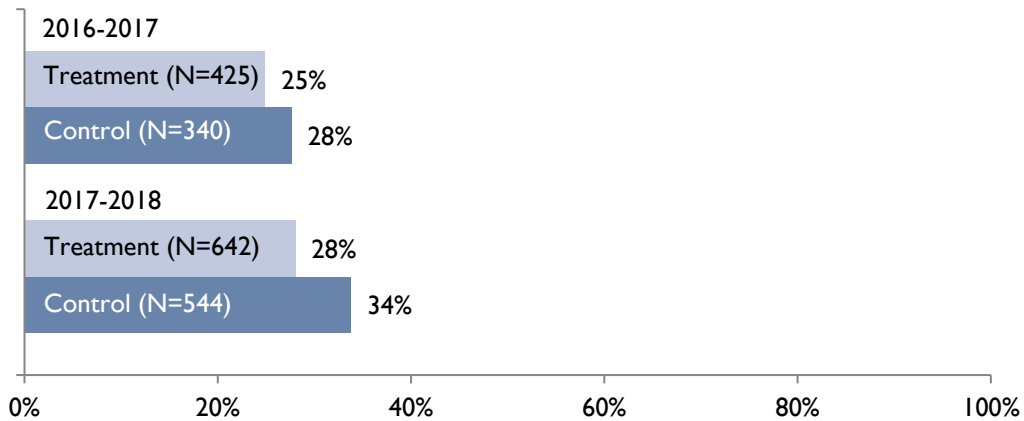
In order to assess the potential relationship between participation in the C3² program and academic achievement, Metis analyzed NYS Math and Reading Test data for both treatment and control students across the latter two implementation years. In spring 2017, 28% of treatment students achieved proficiency on the NYS Math Test relative to 27% of control students (see Figure 7). In spring 2018, 31% of treatment students achieved proficiency on the NYS Math Test relative to 33% of control students. During these implementation years, many of the Long Island school districts had high percentages of parents who elected to have their children opt out of exams. In fact, in spring 2018, around 75% of PMUFSD and 45% of SHUFSD students who were eligible to take these exams opted out, which may affect the validity of the analyses.

Figure 7. Percent of Students Achieving Math Proficiency, Treatment and Control



In spring 2017, 25% of treatment students achieved proficiency on the NYS ELA Test compared to 28% of control students (see Figure 8). In spring 2018, 28% of treatment students achieved proficiency on the NYS ELA Test compared to 34% of control students. Please note that, in spring 2018, about 78% of PMUFSD and about 45% of SHUFSD students who were eligible to take these exams opted out.

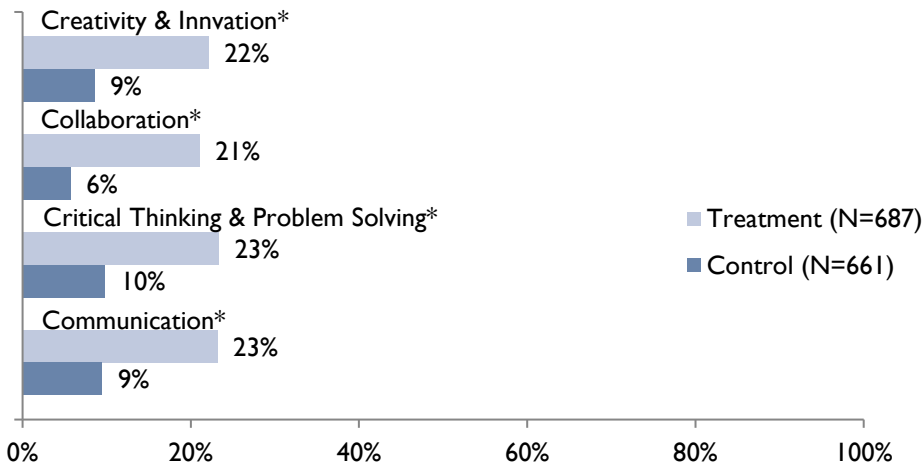
Figure 8. Percent of Students Achieving Reading Proficiency, Treatment and Control



Effects on 21st Century Skills

At the beginning and end of each implementation year, teachers completed 21st Century skills rubrics for each of their students. In order to compare growth in each skill between treatment and control students, pre- and post-means were calculated for each student across each 21st Century skill area. Change scores were calculated by subtracting pre mean scores from post mean scores, which were then assessed for significant differences using independent samples t-tests. A percent change calculator was also used to calculate the percentage by which scores changed from pre to post.¹⁷ Results from matched student rubrics across all three implementation years show that treatment students demonstrated significantly greater increases in all four skill areas (creativity and innovation, collaboration, critical thinking and problem solving, and communication) relative to control students (see Figures 9, 10, 11).

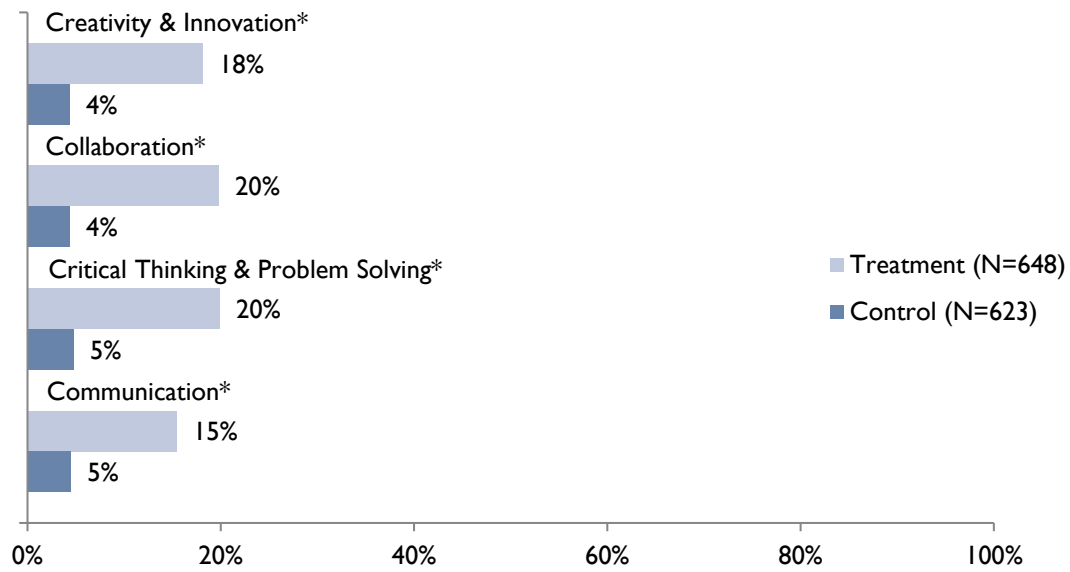
Figure 9. Percent Change in Student 21st Century Skills 2015-2016



*Denotes that post scores were significantly higher than pre-scores using independent samples t-tests.

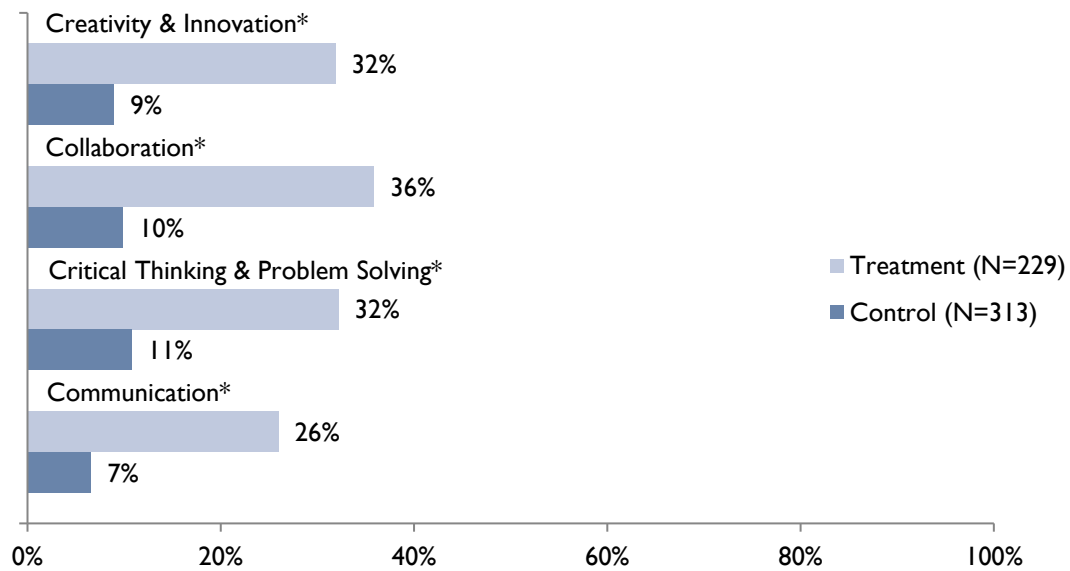
¹⁷ Percent change was calculated by 1) subtracting the pre mean from the post mean, 2) dividing by the absolute value of the pre mean, and 3) multiplying by 100.

Figure 10. Percent Change in Student 21st Century Skills 2016-2017



*Denotes that post-scores were significantly higher than pre-scores using independent samples t-tests.

Figure 11. Percent Change in Student 21st Century Skills 2017-2018

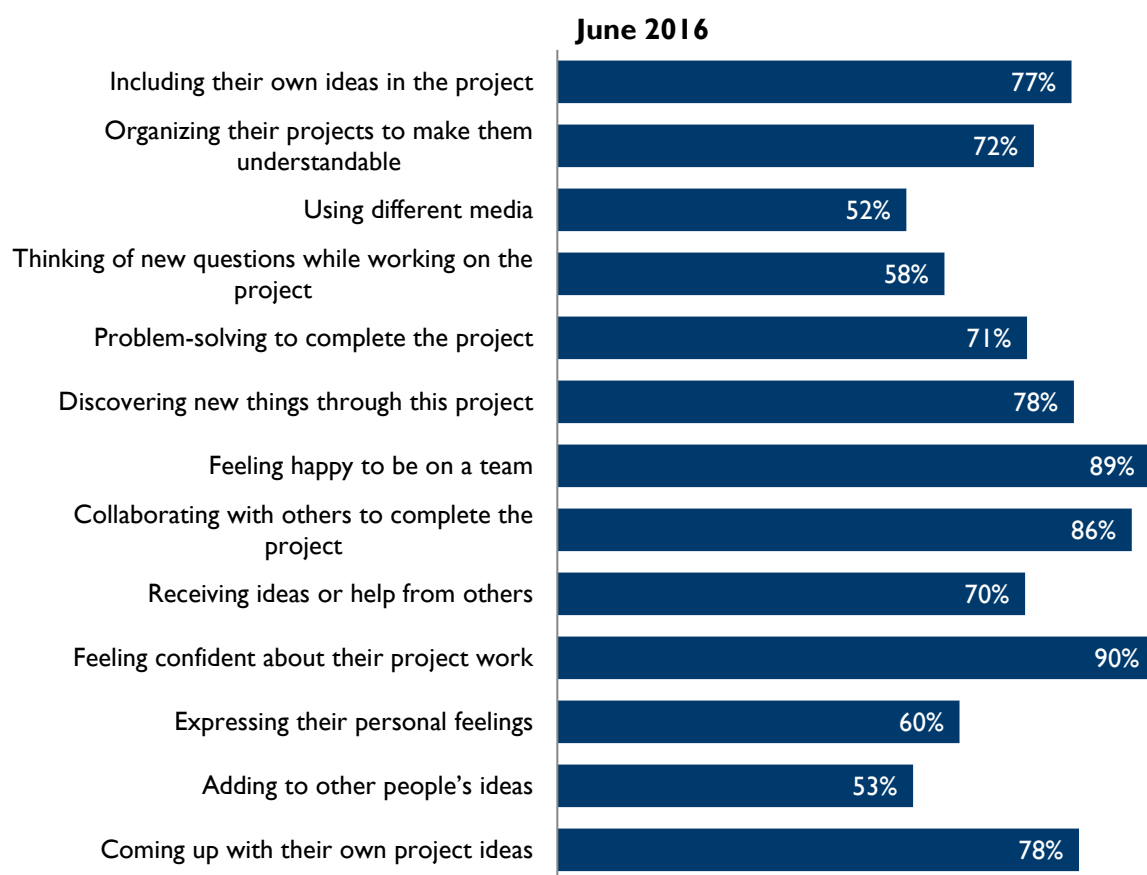


*Denotes that post-scores were significantly higher than pre-scores using independent samples t-tests.

Unit reflections were also collected from treatment students in June 2016, February and June 2017, and February and June 2018. These unit reflections were used to assess students' perceptions of their 21st Century skills during each of the two units implemented each year.¹⁸ As students participated in different units throughout the school year, a change in unit reflection data is not expected; thus, these data are used for descriptive purposes rather than for pre-post comparison.

As shown in Figure 12, a large majority of students in June 2016 indicated that they felt confident in their work (90%), were happy to be on a team (89%), and worked with others to complete their project (86%). A smaller proportion of students indicated that they used different media (52%), added to other people's ideas (53%), and thought of new questions while working on the project (58%).

Figure 12: 2015-2016 Student Unit Reflection Results

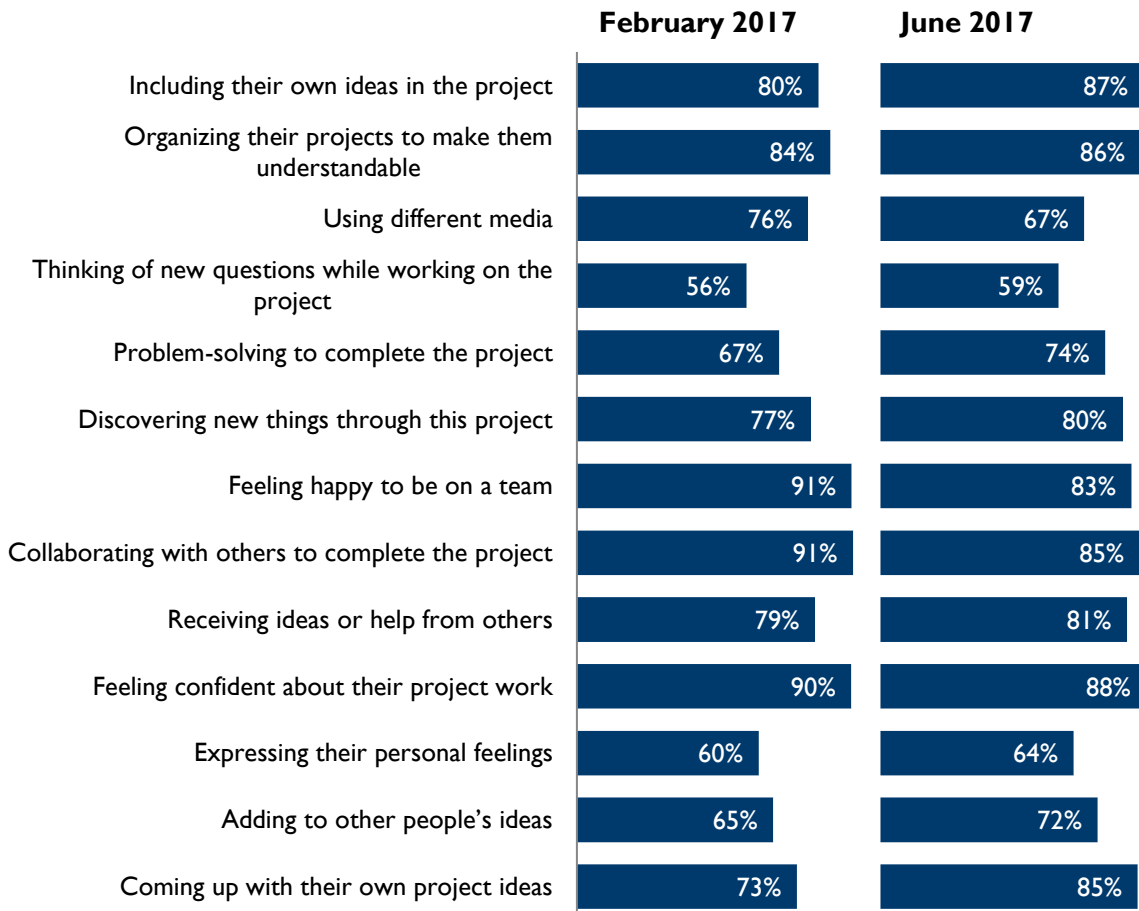


The unit reflection results from 2016-2017 were the most positive of all three implementation years. February 2017 results showed that high proportions of students agreed that they felt happy to be on a team (91%) and to collaborate with others (91%), and that they felt confident about their work (90%), while smaller proportions indicated that they thought of new questions while working on their project (56%), expressed their feelings (60%), and added to other people's ideas (65%; see Figure 13). Similarly, in

¹⁸ During the 2015-2016 school year, students completed one unit reflection at the end of the school year which addressed the two performances that they attended. In 2016-2017 and 2017-2018, students completed two separate unit reflections (one in February and another in June), one for each performance they attended.

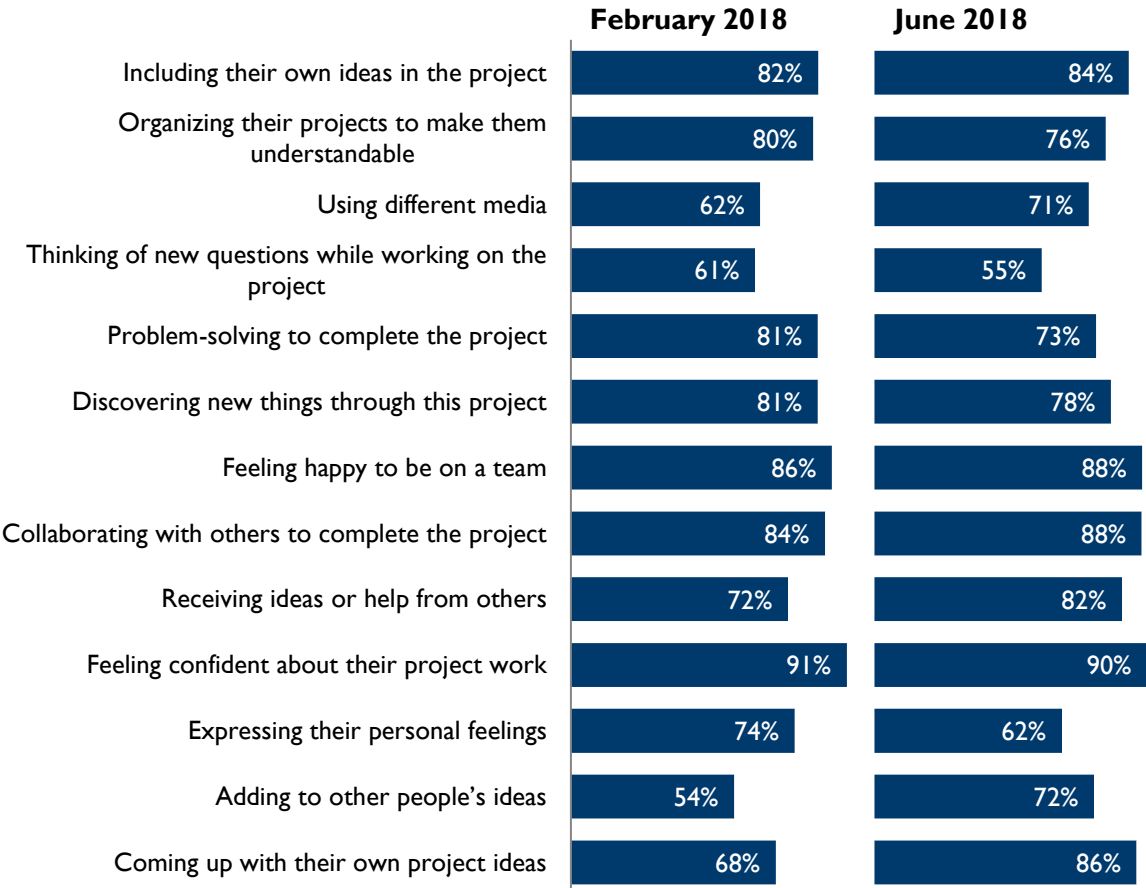
June 2017, the majority of students reported that they felt confident about their project work (88%), were able to include their own ideas in the project (87%), and organized their projects to make them understandable (86%). Fewer students reported that they thought of new questions while working on the project (59%), expressed their personal feelings (64%), and used different media (67%).

Figure 13: 2016-2017 Student Unit Reflection Results



Results of the February 2018 unit reflections demonstrate that large proportions of students agreed that they felt confident in their work (91%), felt happy to be on a team (86%), and worked with their peers to complete the project (84%), while smaller proportions of students indicated that they added to other people's ideas (54%), thought of new questions (61%), and used different media (62%; see Figure 14). On the June 2018 unit reflections, students similarly indicated that they felt confident in their work (90%), felt happy to be on a team (88%), and worked with their peers (88%), while fewer students reported that they thought of new questions (55%), expressed themselves (65%), and used different media (71%).

Figure 14: 2017-2018 Student Unit Reflection Results



Partnership Outcomes

Schools' Knowledge of Local Cultural Arts Organizations

To determine if increased cultural arts connections between local organizations and schools were established, a survey was administered each spring to school leaders. In spring 2016, three of four treatment and all four control school leaders completed a school leader survey. Two of the three responding treatment school leaders indicated increased knowledge of the educational offerings of local cultural arts organizations, while the third school leader indicated "N/A" to this question. Of the four control school leaders, only one agreed that their knowledge of offerings had increased, two disagreed, and one indicated "N/A." These results suggest that, overall, treatment school leaders did indeed gain more knowledge of the educational offerings of local cultural arts organizations relative to control school leaders.

Due to the many competing responsibilities of the school leaders, collection of the survey was challenging, and, therefore, was only completed by one treatment school leader in June 2017. Data from this assessment was used to refine the survey tool and administration process for the 2017-2018 school year.

In 2017-2018, treatment school leaders were again invited to participate in the school leader survey. In June 2018, all three school leaders who responded to the survey agreed or strongly agreed that they have increased their knowledge of the educational offerings of local cultural arts organizations.

Cultural Partners' Awareness of Potential School Partnerships

During the 2015-2016 school year, treatment schools partnered with 13 cultural arts organizations (see Table 8), 17 in 2016-2017 and 16 in 2017-2018.

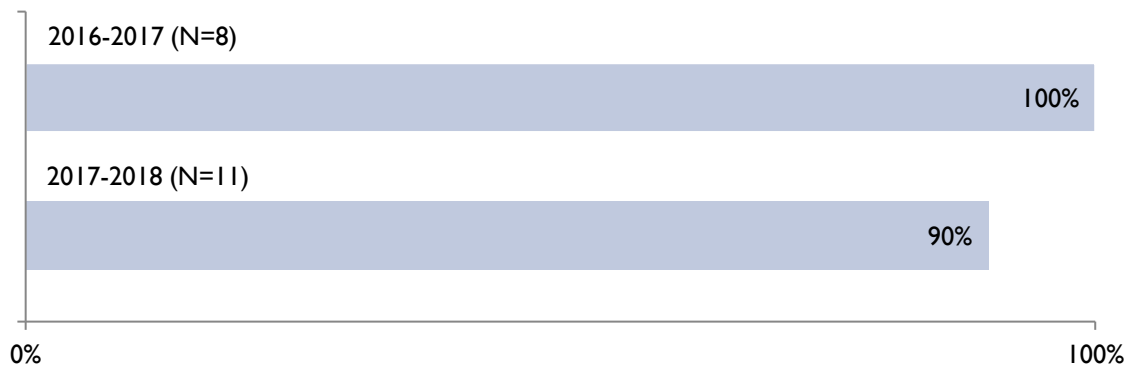
Table 8. Number of School Partnerships

Year	Target	Actual
2015-2016	13	13
2016-2017	13	17
2017-2018	13	16

On June 28, 2017, a Teaching Artist/Cultural Partner Institute was conducted at the ESBOCES office. A total of eight potential cultural partners attended the full-day session, which was designed to increase their awareness of potential school partnerships and support their growth in making connections with the schools. Each of these partners completed pre- and post-surveys to provide information regarding their arts-related knowledge and their perceptions of the Institute. All partners agreed (43%) or strongly agreed (57%) that they had a greater awareness of potential school partnerships and educational programming opportunities as a result of the Cultural Partner Institute (see Figure 15).

On June 28, 2018, this Teaching Artist/Cultural Partner Institute was again held at the ESBOCES office. Eleven cultural partners completed post-surveys to provide information regarding their arts-related knowledge and their perceptions of the Institute. Nine out of the ten partners who completed the survey agreed (20%) or strongly agreed (70%) that they had a greater awareness of potential school partnerships and educational programming opportunities as a result of the Teaching Artist/Cultural Partner Institute.

Figure 15. Percent of Cultural Arts Organizations Reporting Greater Awareness of Partnership Opportunities



The final Teaching Artist/Cultural Partner Institute was offered by ESBOCES on June 27, 2019. Thirteen cultural organization personnel completed post-surveys¹⁹ to provide information regarding their arts-related knowledge and their perceptions of the Institute. Of those 13 participants, all agreed that the presenter was well prepared and qualified, that they planned to incorporate the information into their classrooms, and that the training was “Excellent” overall.

¹⁹ The post-survey was redesigned in 2019 and is thus presented separately from the post-survey data from previous years.

Conclusions

The C3² project brought arts-integration programming to 4th and 5th grade students across three school years, and this programming was associated with greater improvements in 21st Century skills amongst both students and teachers. Teaching artists and teachers collaborated to plan and implement units integrating several art modalities into a variety of subjects. The project team also facilitated relationships between schools and cultural arts organizations that may contribute to sustainability of some aspects of the project, such as student attendance at cultural art performances. The following sections outline the successes and challenges of the project, as well as implications and applications of the findings.

Successes

- **Teaching artists and treatment teachers successfully collaborated to create integrated unit plans.** All unit plans aligned with standards for art instruction, and observation data demonstrate that the material was successfully delivered throughout the three implementation years. Moreover, at least one-quarter of treatment teachers and specialists reported increased use and understanding of collaborative pedagogical practices each year, and this skill was high among teaching artists as well.
- **More than half of treatment teachers and specialists demonstrated improved 21st Century skills each year.** Although differences were not statistically significant, post-scores of treatment teachers and specialists were higher than those of comparison teachers and specialists across all four categories (creativity and innovation, collaboration, critical thinking and problem solving, and communication) in 2015-2017 and across three categories (creativity and innovation, collaboration, and communication) in 2017-2018.
- **Treatment students demonstrated marked improvement in 21st Century skills during each implementation year.** During each year, improvement in each 21st Century skill area was significantly greater for treatment students relative to their peers at comparison schools. Moreover, unit reflection data supported the aforementioned findings, indicating that students felt confident in their work, collaborated with other students to complete projects, and were happy to be on a team.
- **C3² developed and maintained partnerships with several cultural arts organizations throughout the project.** The project included partnerships with up to 20 organizations each year, offering variety in the arts experiences afforded to students and teachers.
- **School leaders and cultural organizations learned more about how to partner together to offer arts education to students.** Through their involvement in the project, school leaders reported increased awareness of the educational offerings of local cultural arts organizations. These arts organizations also participated in the project's Summer Institutes, where they learned more about how to partner with schools to integrate the arts into curricula.

Challenges

- **Small sample sizes and progressively smaller response rates for teachers and administrators may have impacted results and generalizability.** Response rates dwindled over the course of the evaluation. As teachers and specialists have many competing priorities, the various evaluation instruments they needed to complete or collect may have been burdensome;

thus, the evaluators tried to reduce the time requirement in the third evaluation year. However, the low response rates for some instruments may limit the extent to which results accurately reflect impact on teachers, as results were not as favorable as expected.

- **Due to district-wide shortages of substitute teachers, specialists were inconsistently involved in the project.** Though many specialists indicated interest in participating in the project, they were frequently unable to attend planning sessions as they did not have coverage from substitute teachers.
- Due to competing priorities, **only one performance assessment was collected from one administrator.** Though information on the intended outcomes was collected through other observation data, the perspectives of school leaders and other school staff may have been informative to the evaluation.
- **The project was unable to adequately measure the effect on student achievement.** Overall, treatment and control students performed about the same on NYS Math and ELA tests, though high opt-out rates limit the generalizability of these results.

Implications/Applications

Despite the aforementioned challenges, findings from the C3² study offer opportunities for education, arts and cultural development, and social justice activism. Some suggestions for applying components of the project to other contexts include:

- The tools developed for this study can be adapted by researchers, education advocates, and practitioners to measure 21st Century skills across content areas.
- Arts and cultural professionals may also implement the project's methods for partnering with schools and for aligning their programs with 21st Century criteria.
- Peer-to-peer approaches to reflecting on learning and professional practices can be used by education and arts communities to improve confidence and competence to support student learning in the 21st Century and beyond.

Arts integration and 21st Century skills have been promoted steadily and in tandem with education system reform over the past two decades (Workman, 2017). Proposing variations on these approaches can reinforce and foster more inclusive and effective education for all students. Education systems and teachers could benefit from arts integration strategies that help overcome rote and inequitable practices. C3² demonstrates ways in which communities can support meaningful arts and cultural resources. As former American Education Research Association (AERA) president and arts education advocate Maxine Greene once wrote:

At the very least, participatory involvement with the many forms of art can enable us to see more in our experience, to hear more on normally unheard frequencies, to become conscious of what daily routines have obscured, what habit and convention have suppressed (Greene, 1995, p. 132).

The C3² study demonstrates the benefits of increasing “participatory involvement” (Greene, 1995) in the arts as a way to navigate real-world issues.

Appendix A

Table A1. Partnering Organizations

Partner Name	Role/Activities
Child's Play Touring Theater	Performance Artists
Cirque-Tacular	Performance Artist
Dancing Classrooms	Performing and Teaching Artists
DataMomentum	Web designer and webmaster
DCA Productions	Performing Arts
Dr. Laura Reeder	Curriculum Consultant
ESBOCES Arts-in-Education	Project Director, Project Coordinator, Tech Coordinator, Secretary
Heckscher Museum	Cultural Partner - Museum
Long Island Museum	Cultural Partner – Museum
Metis Associates	Research and Evaluation
Old Bethpage Village Restoration	One of the Cultural/Historical sites
Parrish Art Museum	Cultural Partner – Museum
Patchogue Arts Council	Cultural Partner
Patchogue-Medford School District	Treatment and Control Schools
Patchogue Theater for the Performing Arts	Cultural Partner
Pint Size Productions	Performance Artist
South Huntington School District	Treatment and Control Schools
Teaching Artists	Provide Arts Residencies
The Watermill Center	Cultural Partner
Tilles Center at Long Island University	One of the Performing Art spaces
Van Nostrand Theatre	One of the Performing Art spaces
Westhampton Beach Performing Arts Center	One of the Performing Art spaces

Table A2. Dissemination Activities

Venue	Method	Month/Year
Summer Institute	Training	June 2017
Cultural Partner Institute	Training	June 2017
Parrish Museum NYSATA	Presentation	September 2017

Venue	Method	Month/Year
NY State Arts Standards Presentations	Lecture / Training (NYSAIEN)	October 2017
District Coordinator Meeting	Presentation	October 2017
Artist to Artist Exchange	Workshop (ESBOCES)	October 2017
NY State Arts Standards Presentation	Lecture / Training (NYSATA)	November 2017
NYS Arts Teachers Association Conference	Workshop	November 2017
NY State Arts Standards Presentations	Lecture / Training (Nassau BOCES, Lynbrook, Oceanside, Syosset, LI HS for Arts, East Islip, Patchogue-Medford, Half Hollow Hills, William Floyd)	12/8/17 ES BOCES - 1/26/18 Syosset SD, 2/5/17 Oceanside & Lynbrook Schools, 2/7/18 Half Hollow Hills, 2/12/17 East Islip Schools, 3/12/17 East Islip Schools, 3/19/17 Long Island High School for the Arts, Syosset/Nassau BOCES, 3/29/17 Farmingdale HS, 4/20/17 Patchogue-Medford, 4/25/17 Lynbrook & Oceanside, 6/25/17 William Floyd, 9/24/18, 10/9/18 & 10/24/18 Amityville School District, 9/26/18 Lindenhurst Schools, 11/6/18 Brentwood School District
NY State Arts Standards Presentations	Lecture / Training (NYSATA)	November 2017
ES BOCES Board of Education	Presentation with C3 guest artist	November 2017
NY State Arts Standards Presentation	Lecture / Training (ESBOCES)	December 2017
Artist to Artist Exchange #2	Workshop at ESBOCES	April 2018
Museum Association of NY Conference	Panel discussion	April 2018
Summer Institute	Training	June 2018

Venue	Method	Month/Year
Arts Education Partnership	Presentation	September 2018
Artist to Artist Exchange	Workshop (ESBOCES) C3 Artist Panel Discussion	October 2018
District Coordinators Meeting	Presentation	October 2018
NYS Arts Teachers Association Conference	Workshop	November 2018
Mixed Media and The New Art Standards	Workshop	December 2018
Arts Integration through Creative Classroom Collaboratives	Workshop	January 2019
Eastern Educational Research Association Conference	Presentation	February 2019
Eastern Educational Research Association	Presentation	February 2019
National Arts Education Association	Presentation	March 2019
Eastern Evaluation Research Society	Presentation	May 2019
Mixed Media and The New Art Standards	Workshop	May 2019
Riout Teaching Artist CORE Training	Training	May 2019
NYSLS for the Visual Arts & C3 ² Review, Huntington Arts Council	Workshop	June 2019
New Light Workshop @ The Heckscher Museum of Art	Workshop	June 2019
Heckscher Museum of Art	Training	June 2019
American Evaluation Association	Presentation	November 2019
International Journal of Education and the Arts	Academic Journal Submission (in review)	November 2019
Journal for Learning Through the Arts	Academic Journal Submission (in review)	November 2019