

**Assessing Impacts of the CoTA Model and Creative Transformation in Professional Learning Communities:
The Beacon Schools Project (2014 – 2018)**



Collaborations: Teachers and Artists

Year Three Final Report

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*Gabrielle Arengé, MPhil
Research Associate
Centers for Research on Creativity*

This study was conducted and reported with participation from the following Center for Research on Creativity team members:

Principal Investigator

James S. Catterall, Ph.D.

Data Investigator

Gabby Arengé, MPhil

Field Researchers

Dempsey Davis

Lisa Johnson Davis

Report Editor

Kim Zanti

Project Coordinators

Kristin Rosevear

Kim Zanti

CRoC and CoTA extend appreciation to the principals, faculty, and students at Flying Hills, Kellogg, and Park Dale Lane Elementary Schools for their participation in this research study.

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1. Introduction

This report describes the third year implementation of the Collaborations: Teachers and Artists (CoTA) Beacon Schools Project conducted in three schools in San Diego, California. CRoC reported on the third year qualitative data in January, 2018. Quantitative findings were held until results could be analyzed from the final administration of the Next Generation Creativity Survey at Kellogg Elementary School, which joined the study in the second year. This report synthesizes quantitative and qualitative results and concludes with a summary of all findings from the three-year project period.

1.1 History

Over 30 San Diego schools applied to participate in the Beacon Schools Project. During the selection process, schools were required to demonstrate a commitment to the CoTA approach with support from the principal and at least 80 percent of the faculty. Of the eight finalists, three schools were originally selected to participate: Explorer Elementary in San Diego, Flying Hills Elementary in El Cajon, and Park Dale Lane Elementary in Encinitas. After the first year of implementation, a change of leadership prompted Explorer Elementary to withdraw from the project. The data collected from Explorer Elementary was not included in the first-year report. For the second year of implementation, Kellogg Elementary School was selected as the third Beacon School. In the third year of implementation, Kellogg Elementary, Flying Hills Elementary, and Park Dale Lane Elementary participated in the Beacon Schools Project.

1.2. Program Overview

The Beacon Schools Project is a comprehensive, full-school implementation of the CoTA program. Throughout the three-year implementation, CoTA teachers collaborate with resident Teaching artists (TA) during three ten-week sessions.

In Year One, with the guidance of the TAs, teachers learn how arts integration enhances and deepens student learning of content material such as Math, Science, English, and Social Studies.

In Year Two, teachers further their understanding of arts integration and practice aligning arts integration strategies to the Common Core State Standards.

In Year Three, the final year, teachers assume full leadership of arts integration lessons while TAs provide in-class and on-site coaching and support.

CoTA is a professional development program that tackles the possibilities of making the arts a lively, essential, and ongoing aspect of elementary school education [and] is based on the belief that integrating the visual and performing arts into other content areas promotes engagement, accessibility, and relevance for students.

In addition to the teacher-TA collaborations, the Beacon Schools Project features several other forms of professional development and support for teachers, which are listed below.

Brainstorming Sessions

These sessions, held early in the CoTA ten-week cycle, give whole school faculty the opportunity to generate ideas with CoTA education staff and Teaching artists. Time is also allotted to answer questions about scheduling and logistics, or to address concerns that teachers expressed about the impact of the CoTA model on teaching practices and student learning.

Whole School Workshops

These technical training sessions consist of TAs leading principals, faculty, and invited guests—such as the Superintendent of the Encinitas Union School District and staff at Park Dale Lane Elementary School—through art discipline specific activities (i.e., movement/dance, mask making, etc.), while providing handouts with context and information about integrating arts activities into classroom lesson plans.

Quarterly Share-Outs

Quarterly Share-Outs provide opportunities for faculty and principals to hear about the project/projects that teachers identified and shaped in collaboration with the Teaching artist for their ten-week CoTA collaboration. These sessions have grown into a highly valued engagement for teachers. Prior to CoTA there was typically no sharing of lesson plans among faculty, and therefore no opportunity for the exchange of ideas and experiences that could encourage, inspire, challenge, or inform each other's classroom teaching practices. The arts integrated projects made student learning visible and the Share-Outs made teacher learning visible to their peers.

1.3 Program Evaluation

To capture the full school and community growth experienced by students, teachers, teaching artists, parents, principals, and superintendents in the Beacon Schools Program, the Centers for Research on Creativity (CRoC) collected and analyzed quantitative and qualitative data from the participating schools in years one, two, and three. This report presents qualitative findings from the third year

implementation and quantitative data from all three years. It conclude with a summative report of the full three-year implementation, analyses, and recommendations.

The CRoC field research team, based in San Diego, consisted of two Field Researchers, Research Assistant Dempsey Davis and Research Associate Lisa Johnson Davis; the CRoC in-house research team, based in Los Angeles consisted of Principal Investigator James S. Catterall, Ph.D., Research Associate Gabby Arengue, and Associate Director Kim Zanti.

Sadly, in August 2017, Dr. Catterall suffered a stroke to which he succumbed. The research team has continued with the study, following his research design and methodologies.

2. Guiding Research Questions: Year Three

Over the course of the Beacon Schools Project, CoTA and CRoC collaboratively developed research questions to guide the program evaluation. As the project unfolded, new themes and questions emerged, and research questions were updated annually to reflect these developments.

The present report focuses on the findings of these inquiries. The conclusion of the report addresses broad themes related to all areas of inquiry throughout the study.

Below, we share the Year Three research questions.

Student Transformation

What conditions in the CoTA program help to cultivate student creativity and creative learning?

- Over time, what impact does CoTA appear to have on student creativity?
- What other conditions are necessary to cultivate student creativity?

Teacher Transformation

How do CoTA Beacon School teachers adapt or change their teaching approaches, practices, and habits throughout the three-year program?

- When and how do teachers most effectively step out of their comfort zone?
- What is the impact of CoTA on Teacher-to-Teacher influence? How do CoTA Beacon School teachers become peer mentors to other teachers?

How do teachers become expert designers and facilitators of arts-infused, project-based learning?

- If the goal is for teachers to reach “expert” level in project-based learning through the design and facilitation of AI units, what would teachers need in the future to keep growing as practitioners in this field?

Full-School Community Transformation

What and how do CoTA-inspired practices lead to sustainable, full-school creative transformation?

- How do schools sustain a culture that values the symbiotic relationship between teacher creative development and student creativity when there is a change of principal at a site or when new teachers come on board at a school that is deeply committed to arts integration?

3. Evaluation Methods

CRoC employed qualitative and quantitative data generation methods to investigate how the CoTA program prompted creative transformation among the participating students, teachers, and full-school communities. We detail our data generation methods according to participants (students, teachers, principals, and superintendents), and describe both qualitative and quantitative methods. It is important to note that the research team views the full qualitative and quantitative methods as deeply interrelated and useful in triangulating the findings.

3.1 Students

We detail the quantitative methods to evaluate student transformation, namely the Next Generation Creativity Survey (NGCS). Although we primarily evaluate student transformation using the NGCS, in the results discussion we also draw from the qualitative data generated with teachers, principals, and superintendents through observations and focus groups.

3.1.1 Capturing Creativity through the NGCS

Over the three-year Beacon Schools Project, the research team used CRoC's signature student creativity assessment, the Next Generation Creativity Survey (NGCS), to measure student creativity, problem solving, originality, self-efficacy, empathy, collaboration, and critical thinking.

Before expanding upon the details of the NGCS's design, it is essential to clarify CRoC's approach to understanding human creativity. Conceptions and definitions of creativity, both stated and implied, range widely. Some scholars and authors, including Gardner (1993)¹ and Csikszentmihalyi (1996)² focus on extraordinary creativity – the production of masterworks of art, music, dance, or theater.

Others focus on inventions that impact the way we live and work on a global scale – the bread-slicing machine (1928), the hybrid car (2000), and the Swiffer mop (1996) as examples. While we may dream of producing a fresco for the front portico at New York's Metropolitan Museum of Art, or of penning the next best-selling novel, these are not the types of invention we commonly find in school and after-school creativity programs.

The ideas that CoTA brings to creative education focus on smaller acts of invention, often known as 'everyday creativity' or 'little' or 'mini c' creativity, which are nonetheless skills and behaviors that fit common, general definitions, of creativity. These definitions focus on two qualities – creative *processes* that lead to ideas, or things, that (1) are *new or novel*, and (2) *have value*. Thus, a creative idea is an original or unusual idea that can be put to some use or purpose that has value to

¹ Gardner, H. *Creating Minds*. New York: Basic Books, 1993.

² Csikszentmihalyi, M. *The Psychology of Optimal Experience*. New York, Harper Collins, 1996.

someone. Furthermore, the creative *processes*, in which learners experiment, explore, imagine, tinker, test, and take risks are often of equal or greater value than the resulting creative product.

CROc often assesses for everyday creativity, and creative processes, behaviors and orientations using a variety of qualitative methods, like in-class observations. To complement these qualitative process-oriented methods, CROc employs the NGCS, a quantitative tool that captures learners' creative orientations and problem-solving abilities at a given moment in time. Thus, the survey contains questions that ask students to self-report their creative orientations and tasks that can be rated by human judges for their levels and types of creativity. The model below lists the variety of scales on the survey.

3.1.2 NGCS Model

Self-Reported	Demonstrated
Creative Fluency	Idea Fluency
Originality	Creative Fluency
Collaboration	Critical Thinking
Empathy	
Creative Problem Solving	
Creative Self-Efficacy	

The NGCS is intended to measure creative skills and dispositions as well as supportive attitudes (e.g. collaboration and empathy) at the time when students entered CoTA classrooms (teachers and teaching artists collaboratively teaching) and then again after completing instruction in CoTA classrooms. Growth in scores between the pre- and post- administrations provides indications of the effects of programs on their participants.

A signature improvement CROc brings to the NGCS is the opportunity for students to display creative thinking and creative behavior through tasks required by the survey. These tasks include speculating on what life would be like if a novel condition or conditions prevailed, inferring what a character in a drawing might be thinking, and bringing evidence from the drawing to bear on that inference. Students are invited to make multiple speculations. The number they create can be thought of as idea fluency. Their tendency to be original contributes to their creativity scores.

Following Amabile's (1996) Consensual Assessment Model³, we gather expert educators, including teaching artists, to make judgments about the creativity of student responses to these tasks. We also include a set of questions eliciting student self-reports of their own creative practices and orientations. This is a common

³ Amabile, T. *Creativity in Context*, Boulder, CO, Westview Press, 1996.

feature of available creativity tests such as the Torrance Test of Creative Thinking Skills. We also include self-report scales probing the development of student attitudes and behaviors that are believed to be important ingredients in their success. These are measures of collaboration, empathy, creative self-efficacy beliefs, and creative problem solving. These elements align with what is known as the social psychology of creativity.

3.1.3 NGCS Items and Scales

Self Reported Creativity	Definition
Creative Fluency	e.g., agreement with the statement, “I find it easy to think of lots of ideas.”
Originality	e.g., agreement with the statement, “My ideas for solving problems are often unusual.”
Creative Problem Solving	Approaching problems by testing alternative solutions, without rushing to judgment and with a willingness to be wrong while speculating
Creative Self-Efficacy	e.g., agreement with the statement, “I can usually solve a difficult problem if given enough time.”

Psychological States or Dispositions Supporting Creative Behavior	Definition
Collaboration	e.g., agreement with the statement, “I like listening to the ideas of other students.” or, “I like to contribute to group projects.”
Empathy	e.g., agreement with the statement, “I can usually tell how someone else is feeling.” or, “I care about helping others who are having difficulties.”

Demonstrated Creativity	Definition
Demonstrated Creativity	Students compose a self-portrait of themselves designing or inventing something. Portraits are judged for creative details and originality.
Idea Fluency	Students are asked to list as many ideas as possible. The greater number of ideas a student produces in an allotted period of time, the higher her idea fluency.
Critical Thinking	Students are presented with a sketch or image and asked to describe what a cartoon animal is thinking or feeling

Note: In this section of the survey, students respond to open-ended questions and prompts by writing their analyses and conclusions and by drawing themselves doing creative activities, such as inventing, designing, and solving problems.

3.1.4 NGCS Implementation

The research design for the NGCS called for annual administration of pre-post-post forms, following students from 3rd through 5th grades. The quasi-experimental design allows researchers to gauge change across the eight scales measured by the

NGCS (*creative fluency, idea fluency, creative problem solving, creative self-efficacy, collaboration, critical thinking, empathy, and originality*) in a cost-effective manner⁴.

We generated NGCS data from participating schools located in three diverse communities in East, South, and North San Diego County, respectively: Flying Hills Elementary School in Cajon, CA; Kellogg Elementary School in Chula Vista, CA; and Park Dale Lane Elementary School in Encinitas, CA. The first cohort of students, shown in green squares in the table below, is comprised of Flying Hills and Park Dale Lane ES students. The second cohort, shown in light red squares, was added to the study in the second year and is comprised of Kellogg ES students. The numbers reflect the actual number of usable surveys that CROc scored and analyzed.

NGCS Administration Plan - Beacon School Project			
Administration Dates	GRADE 3	GRADE 4	GRADE 5
SY 2014 - 2015, Spring Admin.	Pre* - 116		
SY 2015 - 2016, Spring Admin.	Pre - 22	Post - 109	
SY 2016 - 2017, Spring Admin.		Post - 13	Post - 137
SY, 2017 - 18, Spring Admin.			Post - 47

Pre/Post refers to the survey form used. Numbers reflect total usable surveys.
 'Usable' is defined as a survey with complete identifying information.

Two-hundred and twenty-one students completed the NGCS across the three-year evaluation period. One-hundred and thirty-eight surveys were usable in the pre/post/post analysis (78 boys, 58 girls, 2 unidentified; ages 8 – 10). Surveys are considered “usable” when there is at least one complete pre/post1 or pre/post2 match. The general analytical design of the work was to compare post-scores to pre-scores and then report on gains or losses that students made in various dimensions of creativity.

3.2 Teachers

In-Class and Planning Meeting Observations

To explore how CoTA teachers collaborate with teaching artists (TAs), learn to teach through the arts and for creativity, and transform through the process, CROc field

⁴ Obtaining control groups for the study was not logistically or financially feasible for the current study.

researchers collected observational data from one Beacon School classroom in a case-study approach. The teacher selected for observation is identified as Inquiry Practitioner (IP). During the winter and spring of 2017, two CRoC field researchers observed in-class lessons, which typically consisted of an arts integration lesson co-taught by the TA and IP, and planning sessions, during which TAs and IPs would plan upcoming lessons. Field researchers used Observations Guides with guided prompts to take notes during these sessions.

The observed IPs taught grades 4 and 5 and had an average of 35 students per class. During the ten-week session, the IP and TA were observed, eight times during in-class sessions and five times during planning sessions.

Teacher Surveys & Reflection Journals

To capture the IPs perspectives on their collaborations with the teaching artists, two IPs who were observed in previous years completed a CoTA designed and administered survey in June 2017, after their participation in the CoTA program. One of the two IPs completed a brief CoTA reflection journal, which was collected for analysis, as well.

3.3 Principals

Focus Group

In May June 2017, three CoTA Beacon School principals participated in a CRoC-led focus group. CRoC field researcher Lisa Johnson Davis conducted the hour-long session in the CoTA Conference Room. Discussion questions focused on student performance, school culture, teacher adoption of the CoTA program, and program sustainability. The focus group was recorded by audio and transcribed later for thematic qualitative analysis.

3.4 Superintendents

Semi-structured Interviews

In August 2017, Principal Investigator James Catterall conducted semi-structured interviews with two Beacon School superintendents by phone. In September 2017, CRoC Assistant Director Kim Zanti conducted a semi-structured interview with one Beacon School superintendent by phone. One interview was recorded by audio and transcribed later for thematic qualitative analysis; two interviews were documented with researcher notes. Interview questions addressed perceived gains from the CoTA program, how CoTA affects policies and programs within school districts, and program sustainability.

4. Evaluation Results

We now present the CoTA Year Three evaluation findings. The discussion is structured around each guiding question, or area of creative transformation, starting with student transformation, followed by teacher transformation and full-school community transformation. We conclude with a synthesis of the findings in order to highlight the connections across our data and research questions.

4.1 Student Transformation

CoTA endeavors to spark creative transformation in teachers and across school communities, but especially with students, whose youthful creativity will enable them to become the innovative leaders of tomorrow. Therefore, student growth in and through creative teaching and learning is one of CoTA's key markers of success. In Year Three, the research team used both quantitative and qualitative data to address the first guiding research question:

What conditions in the CoTA program help to cultivate student creativity and creative learning?

- Over time, what impact does CoTA appear to have on student creativity?
- What other conditions are necessary to cultivate student creativity?

We begin the results analysis with the quantitative data from the Next Generation Creativity Survey—an objective measure that gives insight into the extent to which the CoTA program may affect student creativity over time. First, we present the results for all students across the three-year study, followed by results according to school, and finally according to gender. We then conclude with a results discussion and synthesis.

The figures and tables below include averages of pre- (spring 2015) and post- (post 1 = spring 2016; Park Dale Lane & Flying Hills post 2 = spring 2017; Kellogg post 2 = spring 2018) scale scores, which were analyzed to determine if there are statistically significant differences between students' NGCS scores on before during and at the conclusion of the CoTA program. Each self-report scale, in which students reflect on their perceived creative problem solving, collaboration, empathy, creative self-efficacy, and creative fluency skills, ranges from 1 – 4. The demonstrated creativity and critical thinking survey scales are scored by trained survey scorers, and scores range from 0 – 3. Thus, all averages presented in the following tables fall within the 0 – 4 range, but on average, the demonstrated creativity and critical thinking scores are lower due to a smaller score range.

We also present 'significance' and 'effect size' in all of our tables. For 'significance,' we present the statistically calculated *p*-value, which is the percentage that the difference in pre-/post-scores was caused by chance. In other words, a *p*-value below .05 indicates that a change in scores 1) is statistically significant and 2) has a

five percent chance (or less) of being due to coincidence. We draw attention to subscales that show statistical significance with asterisks (* = .100 - .050 *p*-value, ** = .050 - .010 *p*-value, *** = less than .010 *p*-value).

With small samples, the standards for statistical significance require large gains and can also be strongly influenced by small sample sizes and outliers. We therefore also include 'effect size.' The effect size is the change in a score in terms of the standard deviation. If a score gain is half the related standard deviation, the effect size is read as 0.50. The best way to interpret effect sizes is that a larger effect size means more impact or noticeable effect on a scale—and it is a measure that allows comparisons of impacts even in small sample sizes.

We indicate noteworthy effect sizes with asterisks:

- * = small effect of .20 - .40
- ** = moderate effect of .41 to .790
- *** = large effect of .80 or more

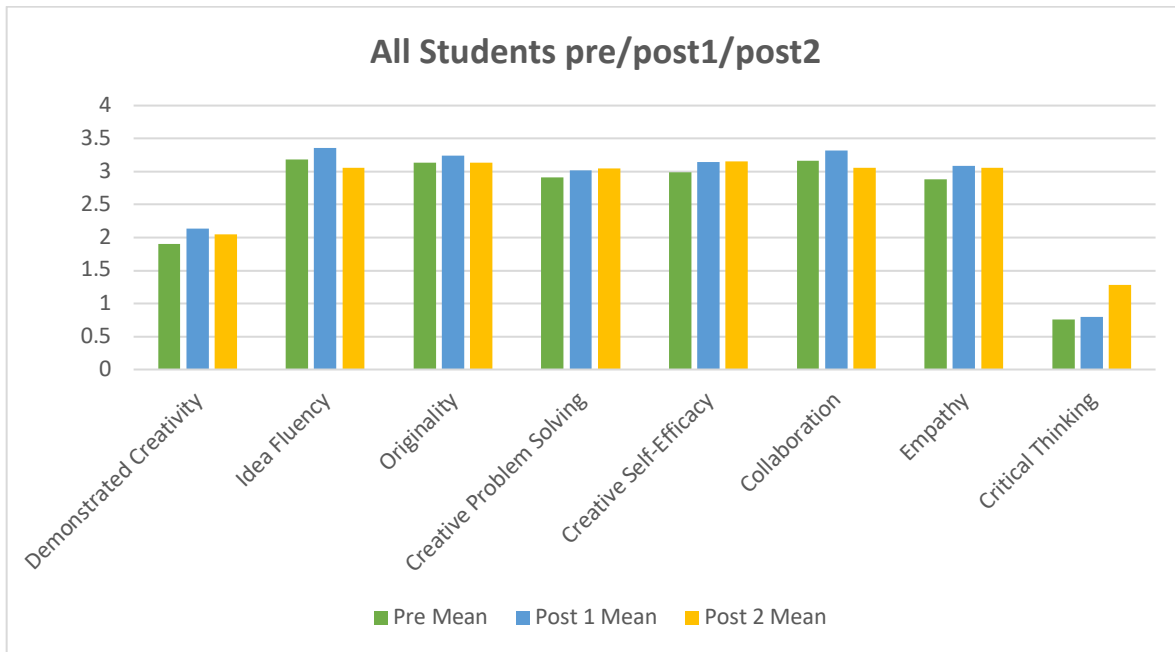
It is important to note that the small sample size and lack of control group make it difficult to draw definitive conclusions about students' creative growth and the program from these quantitative findings. Thus, the results are *descriptive* and provide a snapshot of student perceived and demonstrated creative ability while in the CoTA program.

4.1.1 NGCS: All Students' Results

We now present all student scores, across schools and the three-year study. Figure 1 depicts the results graphically, with pre-scores in green, post1 scores in blue, and post2 scores in yellow. Note again that demonstrated *creativity* and *critical thinking scores* are on a scale of 0 – 3 while all other scale scores are fall between 0 – 4.

Generally, you see a burst of growth, followed by steady stagnancy (i.e. *empathy*, *creative self-efficacy*), a slight drop (*demonstrated creativity*, *originality*), or a notable drop (*idea fluency*, *collaboration*). *Critical thinking* scores appear to improve dramatically between year two and year three, while *creative problem solving* stayed roughly the same across the three years. Furthermore, *idea fluency*, *originality*, and *collaboration* appear to be students' strongest areas, with mean scores at or above 3 across the three years.

Figure 1. All Beacon School Students pre/post1/post2



While Figure 1 provides a graphic visual to demonstrate overall trends, it is important to look at the detailed statistical analyses of all students' NGCS scores, which are presented in Tables 1 – 3. In these tables, we note which of the changes reflected in Figure 1 are of statistical significance and may represent a meaningful change over time. Note that in each table the total sample size (n) changes depending upon survey administration years; this is due to variation in matched surveys across years (i.e. a student may have completed the NGCS in year 1 and year 3 but not in year 2). As a result, the mean scores vary slightly depending on sample size and year comparison.

In Table 1, we present findings for pre- and post1 scale means, i.e. the change in scores between year one and year two. We bold *demonstrated creativity* and *empathy* because the growth on these two scales are statistically significant and demonstrate a small effect size, above .20, which suggests meaningful growth between year one and year two. *Creative self-efficacy* and *collaboration* are also statistically significant at the $p < .10$ level, which is noted in the table with a single asterisk. All others scales also increase between year one and year two, although the increase is not statistically significant.

Table 1. Pre-score means compared to post1 score means, n = 109

Scale	Pre Mean	Post 1 Mean	Significance	Effect Size
<i>Demonstrated Creativity</i>	1.90	2.17	.020**	.226*
<i>Idea Fluency</i>	3.18	3.36	.160	.140
<i>Originality</i>	3.13	3.20	.277	.105
<i>Creative Problem Solving</i>	2.91	2.99	.118	.148
<i>Creative Self-Efficacy</i>	2.99	3.10	.065*	.179
<i>Collaboration</i>	3.16	3.27	.079*	.174
<i>Empathy</i>	2.88	3.05	.017**	.230*
<i>Critical Thinking</i>	.760	.798	.599	.051

The growth identified between year one and year two appears to stagnate or drop between year two and year three, as illustrated in Table 2. In particular, *idea fluency* and *originality* drop significantly with a small effect size, over .20. The drop in *originality* returns to the same score as in year one (3.13), while the drop in *idea fluency* goes slightly below year one scores. However, as illustrated in Table 3, this drop in *idea fluency* from year one to year three is not statistically significant and does not reflect negatively on the CoTA program.

Although most scores stagnate or drop slightly between year, Table 2 shows statistically significant growth with a medium to large effect size (.766) in *critical thinking* between year two and year three, suggesting a meaningful change over time.

Table 2. Post 1 score means compared to post 2 score means, n = 103

Scale	Post 1 Mean	Post 2 Mean	Significance	Effect Size
<i>Demonstrated Creativity</i>	2.14	2.07	.441	.077
<i>Idea Fluency</i>	3.31	3.06	.013**	.256*
<i>Originality</i>	3.24	3.13	.046**	.204*
<i>Creative Problem Solving</i>	3.02	3.04	.582	.040
<i>Creative Self-Efficacy</i>	3.14	3.15	.859	.022
<i>Collaboration</i>	3.32	3.22	.131	.164
<i>Empathy</i>	3.09	3.02	.308	.097
<i>Critical Thinking</i>	.768	1.28	.000***	.766**

Finally, Table 3 illustrates change between year one and year three. This information is perhaps the most important to consider because it provides a before-program and after-program view of student NGCS scores. This beginning to end perspective provides insight to clear start and end points, without the fluctuations that come with the three-year process.

Generally, Table 3 shows that across time, scores either increase or stay the same. Students show statistically significant growth in *creative self-efficacy* and *empathy* with small effect sizes. They also show statistically significant growth in *critical thinking* with a medium to large effect size. There was also a statistically significant increase in *demonstrated creativity* with no notable effect size, and no statistically significant drops in any scale across time.

Table 3. Pre-score means compared to post 2 score means, n = 92

Scale	Pre Mean	Post 2 Mean	Significance	Effect Size
<i>Demonstrated Creativity</i>	1.92	2.05	.090*	.176
<i>Idea Fluency</i>	3.19	3.07	.184	.131
<i>Originality</i>	3.15	3.12	.622	.051
<i>Creative Problem Solving</i>	2.96	3.05	.152	.157
<i>Creative Self-Efficacy</i>	3.00	3.14	.035**	.224*
<i>Collaboration</i>	3.20	3.23	.615	.044
<i>Empathy</i>	2.89	3.06	.035**	.220*
<i>Critical Thinking</i>	.783	1.28	.000***	.717**

In summary, across schools and the three years, we see statistically significant growth in four out of eight scales (*demonstrated creativity*, *creative self-efficacy*, *empathy*, and *collaboration*) between year one and two, and in between year one and three (*demonstrated creativity*, *creative self-efficacy*, *empathy*, and *critical thinking*). For three of these scales, there tends to be a burst of growth between year one and two, and for the fourth scale (*critical thinking*) there is a burst of growth between year two and year three.

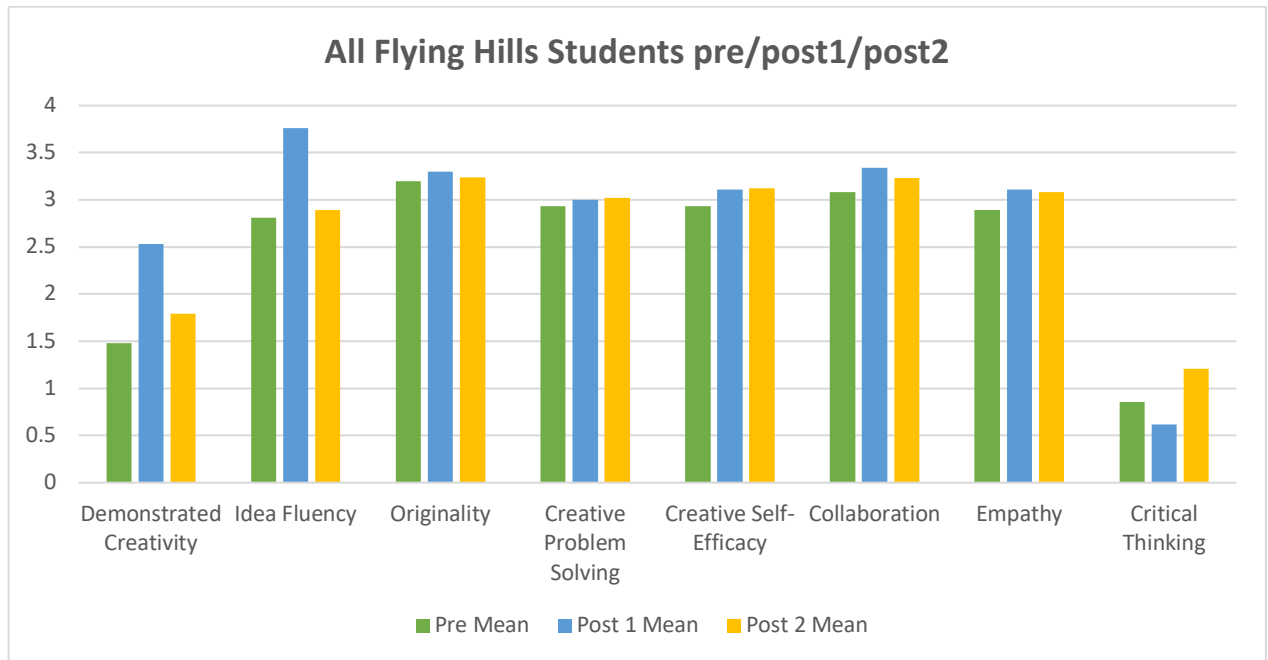
These phased “bursts” of growth across time may indicate that some creative skills or self-perceptions are acquired first, such as the ability to believe that oneself is creative and the ability to demonstrate creativity on tasks. Then, with these creative skills established between year one and two and maintained into year three, it may be more possible to develop critical thinking skills between year two and year three. We explore this further in the NGCS summary at the conclusion of this chapter.

4.1.2 NGCS: Results by School

Flying Hills

We now present school-specific data across the three years, starting with Flying Hills. The general NGCS trends are presented graphically in Figure 2. Flying Hill students show moderate to high scores on most scales. Like the all-school data, there tends to be a burst in growth between year one and year two on all scales except critical thinking, followed by stagnation or a return to baseline year-one levels.

Figure 2. All Flying Hill Students pre/post1/post2



We examine the statistical significance of change over time in Flying Hill NGCS scores in Tables 4 – 6. Table 4 presents data on the change between year one and year two. Table 5 presents data on the change between year two and year three, and table 6 presents data on the change between year one and year three.

In Table 4, we see that seven out of eight scale scores increase over time, and six out of seven scale scores (*demonstrated creativity*, *idea fluency*, *creative problem solving*, *creative self-efficacy*, *collaboration*, and *empathy*) increase significantly with a small to very large effect size. In particular we note that *demonstrated creativity* and *idea fluency* have very large effect sizes (over 1.00) and scores increase by nearly a full point, indicating great and meaningful change between year one and two.⁵ While most scores increase significantly between year one and year two, critical thinking scores decrease significantly with a small effect size.

⁵ These are the largest gains made by any school in all of CRoC's projects.

Table 4. Pre-score means compared to post 1 score means, n = 50

Scale	Pre Mean	Post 1 Mean	Significance	Effect Size
<i>Demonstrated Creativity</i>	1.48	2.52	.000***	1.60***
<i>Idea Fluency</i>	2.81	3.77	.000***	1.04***
<i>Originality</i>	3.20	3.27	.458	.100
<i>Creative Problem Solving</i>	2.93	3.04	.100*	.240*
<i>Creative Self-Efficacy</i>	2.93	3.11	.056*	.276*
<i>Collaboration</i>	3.08	3.26	.069*	.261*
<i>Empathy</i>	2.89	3.08	.041**	.300*
<i>Critical Thinking</i>	.854	.645	.046**	.296*

Table 5 shows that between year two and year three, seven out of eight scale scores either stagnate or drop significantly to levels equivalent to year one scores (*demonstrated creativity* and *idea fluency*). However, critical thinking scores increase significantly with a medium to large effect size between year two and year three.

Table 5. Post 1 score means compared to post 2 score means, n = 41

Scale	Post 1 Mean	Post 2 Mean	Significance	Effect Size
<i>Demonstrated Creativity</i>	2.53	1.81	.000***	1.08***
<i>Idea Fluency</i>	3.76	2.91	.000***	.985***
<i>Originality</i>	3.30	3.24	.410	.120
<i>Creative Problem Solving</i>	3.00	3.02	.805	.036
<i>Creative Self-Efficacy</i>	3.11	3.12	.939	.024
<i>Collaboration</i>	3.34	3.20	.219	.194
<i>Empathy</i>	3.11	3.10	.942	.014
<i>Critical Thinking</i>	.618	1.24	.000***	.746**

Finally, in Table 6, we see that over the three-year period, *all scores increase over time*, with statistically significant increases and low to very high effect sizes in three out of eight scales (*demonstrated creativity*, *empathy*, and *critical thinking*).

Table 6. Pre-score means compared to post 2 score means, n = 41

Scale	Pre Mean	Post 2 Mean	Significance	Effect Size
<i>Demonstrated Creativity</i>	1.48	1.79	.003***	.510**
<i>Idea Fluency</i>	2.78	2.89	.359	.136
<i>Originality</i>	3.17	3.24	.499	.111
<i>Creative Problem Solving</i>	2.94	3.02	.411	.136
<i>Creative Self-Efficacy</i>	2.96	3.12	.163	.221*
<i>Collaboration</i>	3.15	3.23	.446	.110
<i>Empathy</i>	2.87	3.08	.071*	.280*
<i>Critical Thinking</i>	.863	1.21	.000***	1.79***

In summary, similar to the all school data, Flying Hills students show initial bursts of growth in nearly every area between year one and year two. Then scores either stagnate or return to baseline levels in year three, except for critical thinking which shows a delay in growth until year three. Over time, the most significant and sustained areas of growth are in *demonstrated creativity* and *empathy*.

Kellogg

Finally, we present three-year results for Kellogg. Because Kellogg joined in 2016, pre-scores were collected in 2016, post1 scores were collected in 2017, and post2 scores were collected in 2018. This data is depicted graphically in Figure 3.

Generally, Kellogg shows higher baseline scores than Park Dale Lane and Flying Hills on all scales, except for the *critical thinking*, which is comparable to Park Dale Lane and Flying Hills. This is interesting and important to note when examining the three-year data; Kellogg students entered the CoTA program with high levels of creativity, problem solving, originality, empathy and collaboration, both as demonstrated in tasks and as perceived and reported on self-report scale items.

Over time, we see students' scores either increasing with slight bursts, like with most CoTA students, then we see a decline to baseline levels or lower in four out of eight scales (*originality*, *creative problem solving*, *creative self-efficacy*, and *collaboration*). We also see a slight decline in two scales (*demonstrated creativity* and *idea fluency*) after one year with an increase back to baseline levels in year three.

To better interpret the nuance in these trends, we present statistical data in Tables 7 – 9. It is also very important to note that Kellogg’s sample size (between 7 and 13 students with matched pre/post1/post2 surveys) is significantly smaller than PDL and Flying Hill sample sizes. Thus, all results in this section are likely affected by the small sample sizes—an outlier student can drastically effect the mean scores in an upwards or downwards direction—and should be interpreted with discretion.

Figure 3. All Kellogg Students pre/post1/post2

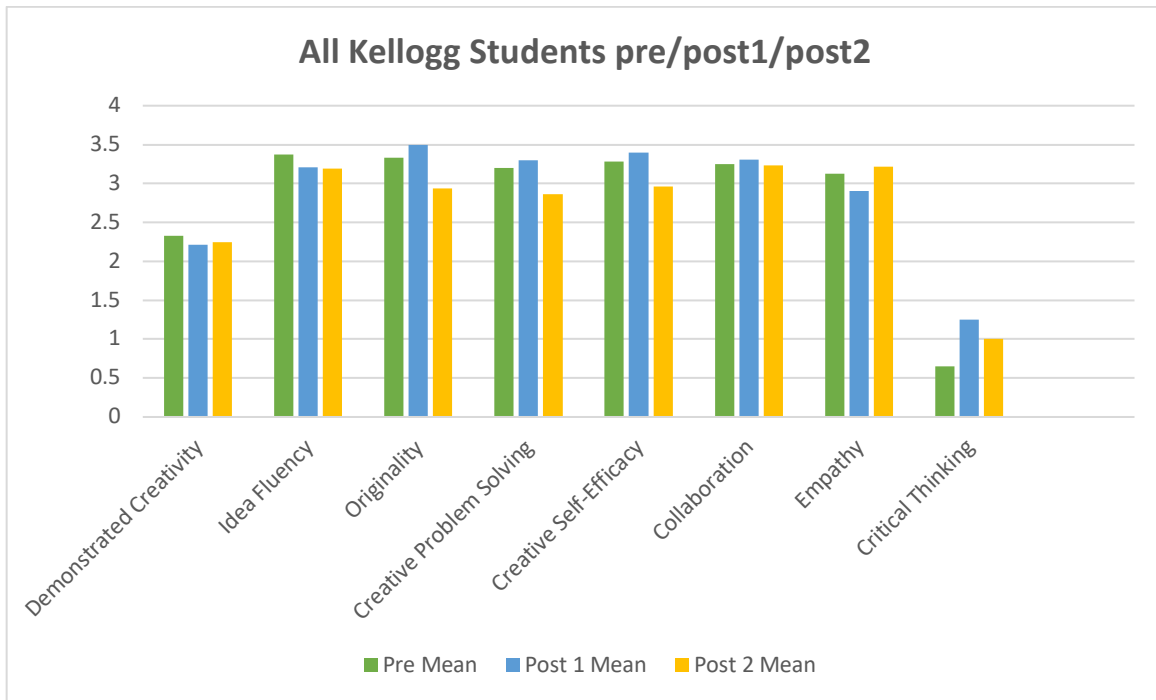


Table 7 shows Kellogg student year one score averages compared to year two score averages. Students experienced a statistically significant gain in critical thinking with a very large effect size (1.29). Students also experienced statistically significant losses in *demonstrated creativity*, *idea fluency*, *creative self-efficacy*, and *empathy*. However, as noted previously, the changes in scores are likely affected by the very small sample size.

Table 7. Pre-score means compared to post 1 score means, n = 13

Scale	Pre Mean	Post 1 Mean	Significance	Effect Size
<i>Demonstrated Creativity</i>	2.33	2.08	.144	.433**
<i>Idea Fluency</i>	3.37	2.92	.091*	.519**
<i>Originality</i>	3.33	3.21	.468	.216*
<i>Creative Problem Solving</i>	3.20	3.00	.168	.403*
<i>Creative Self-Efficacy</i>	3.28	3.10	.089*	.500**
<i>Collaboration</i>	3.33	3.37	.740	.118
<i>Empathy</i>	3.13	2.72	.075*	.539**
<i>Critical Thinking</i>	0.65	1.23	.001***	1.29***

Table 8 shows that scores between year two and year three tend to decrease, especially in *originality*, *creative self-efficacy*, and *collaboration*. However, in this comparison, the total sample size is seven students—an even smaller sample size than the year one to year two comparison. Thus, these drops in scores should be interpreted with caution; they are unlikely to represent meaningful changes in student performance due to the CoTA program.

Table 8. Post 1 score means compared to post 2 score means, n = 7

Scale	Post 1 Mean	Post 2 Mean	Significance	Effect Size
<i>Demonstrated Creativity</i>	2.21	2.00	.534	.275*
<i>Idea Fluency</i>	3.21	2.82	.333	.395*
<i>Originality</i>	3.5	2.82	.004***	1.70***
<i>Creative Problem Solving</i>	3.30	2.79	.137	.638**
<i>Creative Self-Efficacy</i>	3.4	2.86	.056*	.890***
<i>Collaboration</i>	3.54	3.14	.050**	.463**
<i>Empathy</i>	2.90	3.10	.604	.217*
<i>Critical Thinking</i>	1.25	0.92	.102	.809***

Finally, in Table 9, we present NGCS results comparing year one and year three in Kellogg. We see a significant gain in *critical thinking*, but declines or stagnation in

most other scales. Again however, the sample consists of nine students—still a very small sample size, making it difficult to draw meaningful conclusions from this data.

Table 9. Pre-score means compared to post 2 score means, n = 9

Scale	Pre Mean	Post 2 Mean	Significance	Effect Size
<i>Demonstrated Creativity</i>	2.44	2.25	.390	.328*
<i>Idea Fluency</i>	3.44	3.19	.416	.286*
<i>Originality</i>	3.19	2.94	.305	.365*
<i>Creative Problem Solving</i>	3.31	2.86	.029**	.900***
<i>Creative Self-Efficacy</i>	3.42	2.96	.088*	.638**
<i>Collaboration</i>	3.51	3.14	.008***	1.17***
<i>Empathy</i>	3.33	3.22	.580	.191
<i>Critical Thinking</i>	0.75	1.00	.104	.660**

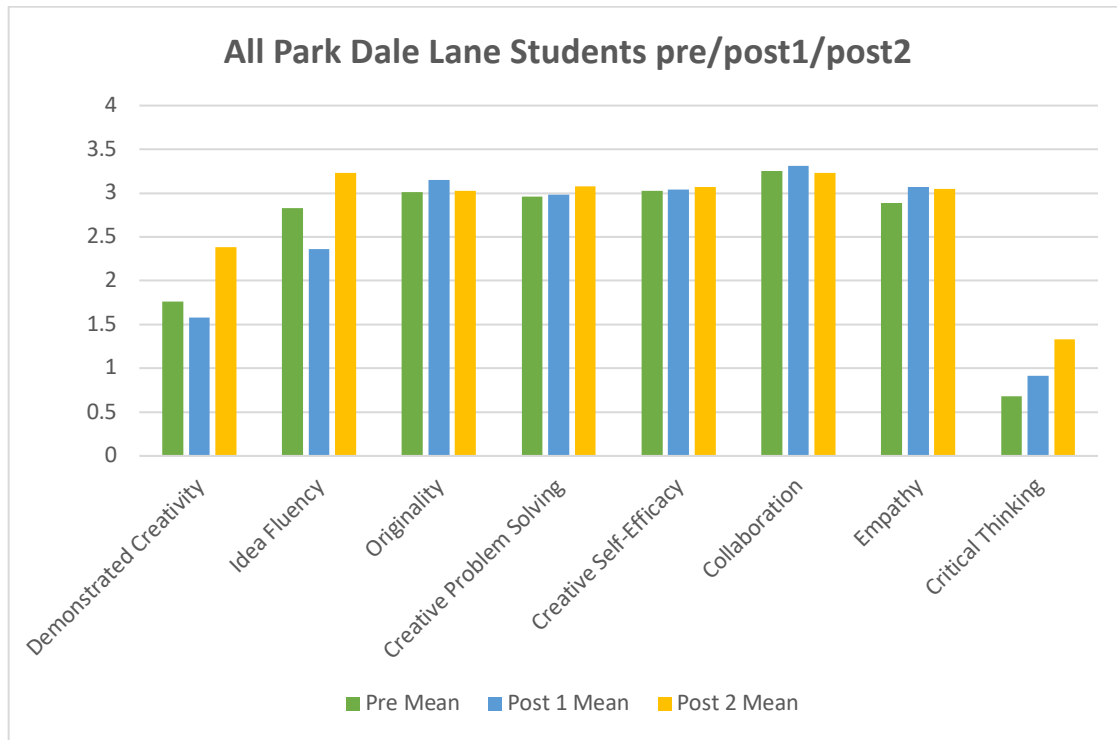
In summary, due to very small sample sizes with Kellogg data, it is difficult to detect meaningful trends or changes in student performance on the NGCS over time. We therefore re-emphasize that the results should be observed with prudence. It is best to use the all-schools data to identify larger and more meaningful trends and changes over time.

Park Dale Lane

In Figure 4, we graphically present average NGCS scores for all Park Dale Lane (PDL) students across the three survey administrations. This visual presentation demonstrates that across most scale scores, PDL students had moderate to high baseline scores with marginal gains after one year of CoTA instruction on six of the self-reported scales (*originality, creative problem solving, creative self-efficacy, empathy, collaboration, and critical thinking*), and noticeable drops after one year on the two demonstrated creativity sub-scales (*demonstrated creativity and idea fluency*). In the third and final assessment, we see large gains in three scales—*demonstrated creativity, idea fluency, and critical thinking*—and stagnation self-reported scales.

We present the findings in more detail in tables 10, 11, and 12, comparing pre to post1, post1 to post2, and pre to post2.

Figure 4. All Park Dale Lane Students pre/post1/post2



In Table 10, we detail pre-score averages from spring 2015 to post1 scale averages from spring 2016. Notably, students’ scores significantly increased on *empathy* and *critical thinking* scales with small and moderate effect sizes. They also experienced a statistically significant drop in *idea fluency*. Students also dropped in their *demonstrated creativity* with a small effect size.

Students’ drop in *idea fluency* and *demonstrated creativity* could be related to tension between teachers and teaching artists in the first year of implementation. As reported in previous qualitative reports, new CoTA teachers can be resistant to unfamiliar arts integration pedagogies and practices. As a result, during this new and uncomfortable learning period, teachers may have actively negated the teaching artist’s approach, attempting to tame creative chaos, and/or quiet student creativity. Thus, logically students may experience a dip in their demonstrated creative ability—due to inconsistent classroom culture, which may at times actually stifle creative behaviors—while remaining consistent in their self-perceptions of their creative ability. As illustrated in Table 11, however, this drop is rectified and surpassed in the third year, which suggests teachers’ resistance may have subsided by the third year, allowing for optimum creative growth.

Table 10. Pre-score means compared to post 1 score means, n = 48

Scale	Pre Mean	Post 1 Mean	Significance	Effect Size
<i>Demonstrated Creativity</i>	1.76	1.58	.180	.254*
<i>Idea Fluency</i>	2.83	2.36	.020**	.472**
<i>Originality</i>	3.07	3.15	.410	.146
<i>Creative Problem Solving</i>	2.96	2.98	.791	.049
<i>Creative Self-Efficacy</i>	3.03	3.04	.903	.019
<i>Collaboration</i>	3.25	3.31	.499	.117
<i>Empathy</i>	2.89	3.07	.144	.239*
<i>Critical Thinking</i>	.679	.929	.011**	.622**

In Table 11, we compare year two and three average scores. Although there were significant drops in *demonstrated creativity* and *idea fluency* after the first year of implementation, we now see statistically significant gains in *demonstrated creativity* and *idea fluency* after completing the full program. We also see small effect sizes for slight decreases in *originality* and an increase in *creative problem solving*. There was also another statistically significant gain in *critical thinking* with a moderate to large effect size between year two and three.

Table 11. Post 1 score means compared to post 2 score means, n = 48

Scale	Post 1 Mean	Post 2 Mean	Significance	Effect Size
<i>Demonstrated Creativity</i>	1.58	2.38	.000***	1.195***
<i>Idea Fluency</i>	2.36	3.23	.000***	.960***
<i>Originality</i>	3.15	3.03	.142	.243*
<i>Creative Problem Solving</i>	2.98	3.08	.136	.213*
<i>Creative Self-Efficacy</i>	3.04	3.11	.374	.121
<i>Collaboration</i>	3.31	3.22	.313	.165
<i>Empathy</i>	3.07	3.03	.712	.051
<i>Critical Thinking</i>	.917	1.33	.000***	.739**

In Table 12, we examine average scores from the pre-program administration in spring 2015 and the final survey administration in spring 2017. We see statistically significant gains in *demonstrated creativity*, *idea fluency* and *critical thinking* with small to large effect sizes. We also see a gain in *creative problem solving* with a small, but notable effect size. There were no sustained statistically significant losses over time.

Table 12. Pre-score means compared to post 2 score means, n = 50

Scale	Pre Mean	Post 2 Mean	Significance	Effect Size
<i>Demonstrated Creativity</i>	1.78	2.38	.000***	.933***
<i>Idea Fluency</i>	2.87	3.21	.045**	.383*
<i>Originality</i>	3.08	3.03	.509	.103
<i>Creative Problem Solving</i>	2.98	3.08	.240	.214*
<i>Creative Self-Efficacy</i>	3.00	3.07	.293	.142
<i>Collaboration</i>	3.24	3.23	.232	.012
<i>Empathy</i>	2.91	3.05	.948	.184
<i>Critical Thinking</i>	.720	1.33	.000***	.742**

4.1.3 NGCS: Results by Gender

We now present findings on NGCS scores from all CoTA students according to gender. We first present findings for girls in Figure 5 and Tables 13 – 15. Figure 5 shows that girls have higher scores across administration periods in almost all areas compared to boys, with average self-reported scores over at 3 and above. This suggests that girls' confidence or perceived creative abilities tends to be slightly higher than boys confidence or perceived abilities. Figure 5 also shows that girls experience a burst in growth on most scales followed by stagnation or a marginal decline. We examine the statistical significance of these changes in scores in Tables 13 – 15.

Figure 5. All Girls pre/post1/post2

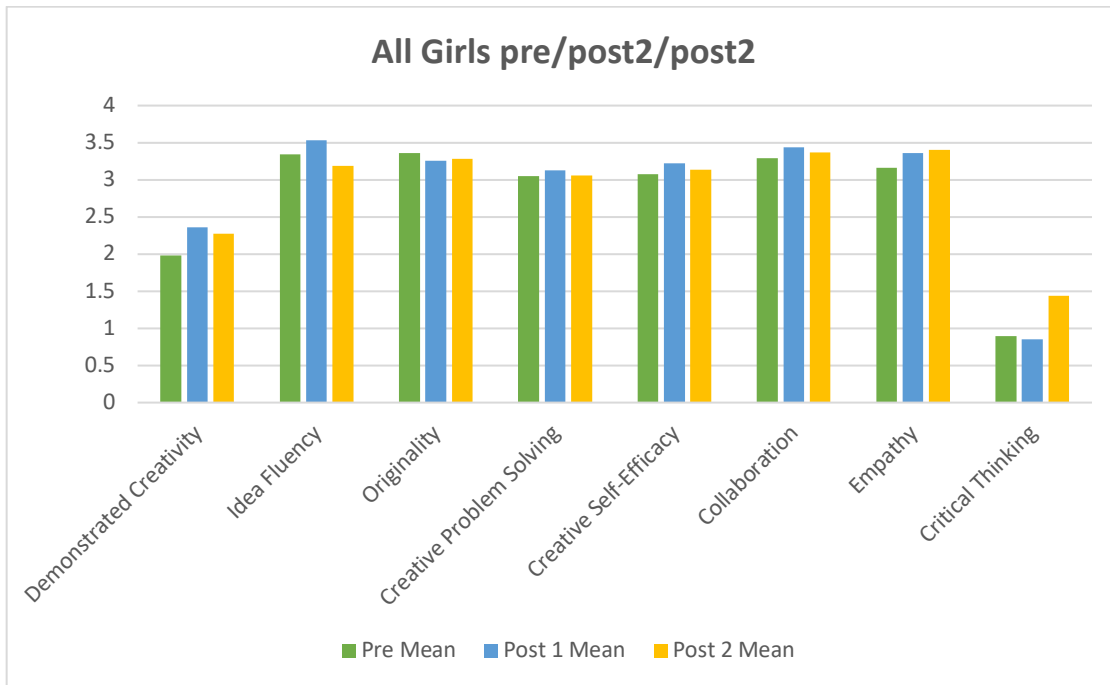


Table 13 shows that girls experienced significant growth in *demonstrated creativity* and a significant drop in *originality* between years one and two. All other scores fluctuated slightly and insignificantly.

Table 13. Pre-score means compared to post 1 score means, n = 41

Scale	Pre Mean	Post 1 Mean	Significance	Effect Size
<i>Demonstrated Creativity</i>	1.98	2.36	.060*	.319*
<i>Idea Fluency</i>	3.34	3.48	.466	.121
<i>Originality</i>	3.36	3.19	.060*	.305*
<i>Creative Problem Solving</i>	3.05	3.08	.683	.067
<i>Creative Self-Efficacy</i>	3.08	3.09	.908	.018
<i>Collaboration</i>	3.29	3.39	.312	.162
<i>Empathy</i>	3.16	3.28	.338	.160
<i>Critical Thinking</i>	.895	.947	.720	.058

Table 14 shows that girls experienced a significant gain in *critical thinking* and a significant loss in *idea fluency* between years two and three. All other scale scores stagnated.

Table 14. Post 1 score means compared to post 2 score means, n = 40

Scale	Post 1 Mean	Post 2 Mean	Significance	Effect Size
<i>Demonstrated Creativity</i>	2.36	2.24	.452	.132
<i>Idea Fluency</i>	3.53	3.18	.024**	.391*
<i>Originality</i>	3.26	3.29	.661	.060
<i>Creative Problem Solving</i>	3.13	3.11	.811	.040
<i>Creative Self-Efficacy</i>	3.22	3.18	.597	.093
<i>Collaboration</i>	3.44	3.40	.671	.071
<i>Empathy</i>	3.36	3.37	.911	.014
<i>Critical Thinking</i>	.855	1.41	.000***	.645**

Finally, when comparing years one and three, girls showed notable gains in *demonstrated creativity* and significant gains with low to moderate effect sizes in *empathy* and *critical thinking*. Girls also showed a significant loss in *idea fluency*, but there is a very low effect size, suggesting this detected loss is not meaningful.

Table 15. Pre-score means compared to post 2 score means, n = 32

Scale	Pre Mean	Post 2 Mean	Significance	Effect Size
<i>Demonstrated Creativity</i>	2.06	2.27	.150	.265*
<i>Idea Fluency</i>	3.27	3.19	.092*	.091
<i>Originality</i>	3.36	3.28	.434	.134
<i>Creative Problem Solving</i>	3.10	3.06	.753	.062
<i>Creative Self-Efficacy</i>	3.07	3.14	.555	.107
<i>Collaboration</i>	3.24	3.37	.351	.178
<i>Empathy</i>	3.11	3.40	.067*	.340*
<i>Critical Thinking</i>	.968	1.44	.008***	.512**

We now present boys' results across the three-year period in Figure 6 and Tables 16 – 18. Figure 6 shows that boys experienced a burst in gains in all scales between years one and two. Then between years two and three they experienced a slight drop or stagnation, except in *critical thinking*, in which boys showed a large gain.

Figure 6. All Boys pre/post1/post2

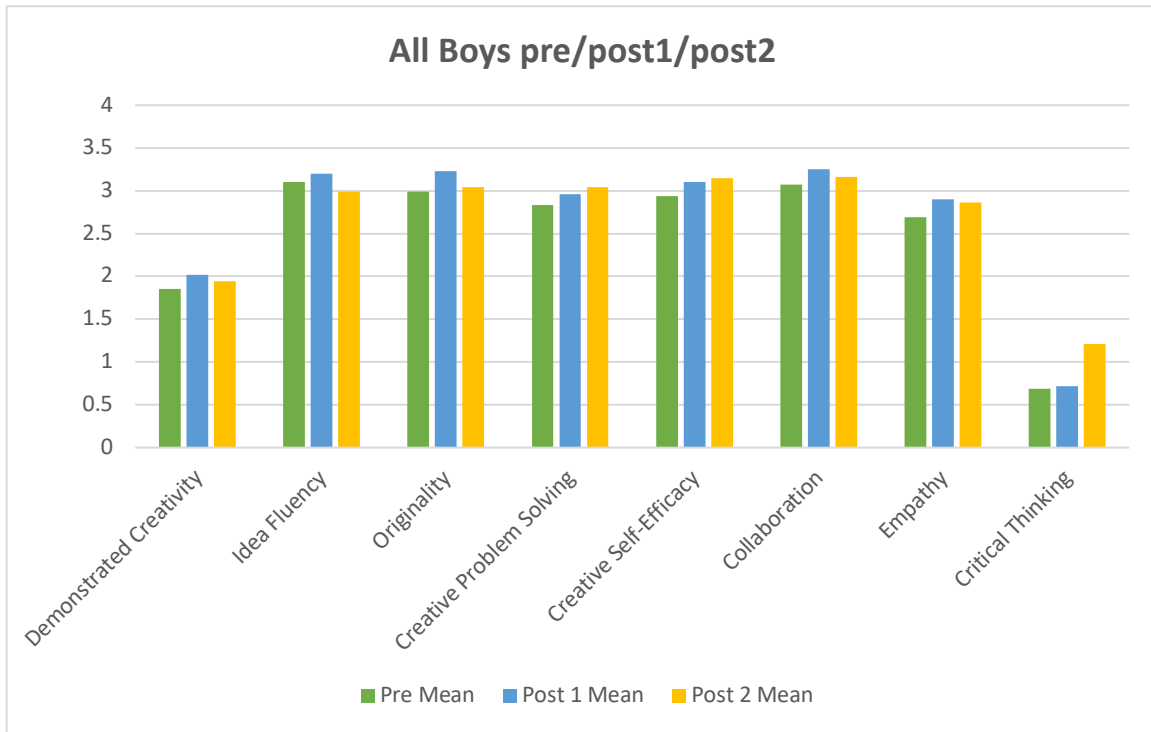


Table 16 shows that between years one and two, boys experienced statistically significant gains in three scales (*originality*, *creative self-efficacy*, and *empathy*) and notable gains with small effect sizes in six scales (*demonstrated creativity*, *originality*, *creative problem solving*, *creative self-efficacy*, *collaboration*, and *empathy*). As documented in Figure 6, boys experienced no losses between year one and two.

Table 16. Pre-score means compared to post 1 score means, n = 67

Scale	Pre Mean	Post 1 Mean	Significance	Effect Size
<i>Demonstrated Creativity</i>	1.85	2.09	.107	.201*
<i>Idea Fluency</i>	3.10	3.31	.207	.152
<i>Originality</i>	2.99	3.22	.010**	.335*
<i>Creative Problem Solving</i>	2.83	2.95	.113	.203*
<i>Creative Self-Efficacy</i>	2.94	3.11	.034**	.262*
<i>Collaboration</i>	3.07	3.20	.101	.204*
<i>Empathy</i>	2.69	2.90	.024**	.284*
<i>Critical Thinking</i>	.685	.715	.703	.046

Table 17 shows that the boys gained significantly in *critical thinking* with a very large effect size between years two and three. They also significantly declined and returned to baseline levels in *idea fluency* and *originality* with small effect sizes. On all other scales, boys stagnated.

Table 17. Post 1 score means compared to post 2 score means, n = 62

Scale	Post 1 Mean	Post 2 Mean	Significance	Effect Size
<i>Demonstrated Creativity</i>	2.02	1.95	.572	.078
<i>Idea Fluency</i>	3.20	2.98	.090*	.220*
<i>Originality</i>	3.23	3.03	.006***	.363*
<i>Creative Problem Solving</i>	2.96	3.00	.459	.082
<i>Creative Self-Efficacy</i>	3.10	3.13	.586	.064
<i>Collaboration</i>	3.25	3.12	.116	.201*
<i>Empathy</i>	2.90	2.77	.173	.176
<i>Critical Thinking</i>	.717	1.22	.000***	.965***

Finally, Table 18 shows that over the three-year study boys significantly gained in *creative problem solving*, *creative self-efficacy*, and *critical thinking* with small effect sizes. In all other scales, they stayed the same.

Table 18. Pre-score means compared to post 2 score means, n = 59

Scale	Pre Mean	Post 2 Mean	Significance	Effect Size
<i>Demonstrated Creativity</i>	1.84	1.94	.318	.139
<i>Idea Fluency</i>	3.06	2.99	.564	.075
<i>Originality</i>	3.03	3.04	.933	.017
<i>Creative Problem Solving</i>	2.90	3.04	.042**	.263*
<i>Creative Self-Efficacy</i>	2.97	3.15	.032**	.292*
<i>Collaboration</i>	3.16	3.16	.968	.000
<i>Empathy</i>	2.75	2.86	.242	.150
<i>Critical Thinking</i>	.690	1.21	.000***	3.60***

4.1.4 NGCS Results Discussion and Synthesis

In summary, the three-year NGCS findings are promising with sustained, statistically significant growth in three NGCS scales over time: *demonstrated creativity*, *creative self-efficacy*, and *empathy*. Students tended to experience a burst of growth between year one and year two in these areas and then sustained this higher level of creative ability into year three. Additionally, in the final year students experienced a very large gain in *critical thinking*. It is important to note, due to the experimental design, these gains cannot be causally linked to the CoTA program. Thus, these gains could be a result of natural cognitive development between grades 3 and 5, the Beacon schools culture outside of CoTA, other community or social factors, etc. However, even if the gains cannot be solely attributed to CoTA, the gains are promising.

Furthermore, growth in these particular NGCS scales is especially promising because *demonstrated creativity* and *critical thinking* scores are based upon students' **actual performance** on creative tasks, unlike other NGCS scales, which are based upon students' perceptions of themselves. This indicates that students are genuinely improving in their creative abilities. Furthermore, as their creative abilities grow, their creative self-efficacy—or belief in their ability to be creative—improves, showing a degree of alignment between their perceived and actual abilities.

Students' growth in empathy could be a sign that students did not simply develop their creative skills in a vacuum. In CoTA, they co-created *with* their peers and teachers, and likely throughout that process developed the ability to understand and work with each other. Furthermore, many of the CoTA projects, especially in social sciences, history, and English literature used tableaux, videomaking, drama, and other creative ways to deepen students' learning and understanding of a particular event, people, or social situation. Thus, students may have cultivated greater empathy by engaging in arts-integration methods that prompted them to engage with abstract historical or fictional events in a more vivid, relatable form. Additionally, and as mentioned previously, student gains in empathy may also be related to natural developmental processes that occur as students age from approximately 7 years of age to 10 or 11 years of age.

It is also important to note that CoTA students consistently demonstrated high levels of collaboration. Regardless of fluctuation across years, students' collaboration scores were the highest among all NGCS scales. This is triangulated in the three years of qualitative work that demonstrate that students were regularly prompted to work on group projects and had ample opportunities for small group learning supported by the teacher and/or teaching artist. Furthermore, the qualitative data indicates that students were prompted to focus on the process over the product, i.e. how they can work with peers and teachers to co-create and explore ideas, methods, and more. This focus may also create a space for students to use their already strong collaboration skills, and/or for them to develop greater confidence in their ability to collaborate.

The data also demonstrated a "burst" trend, whereby students made significant gains between year one and two and then subsequently either sustained the growth or returned to baseline skill levels present at the start of the study. This could indicate that year two is a particularly important time to foster a variety of creative skills. When examining the qualitative data and understanding the structure of the CoTA program, this year two burst makes sense. Year two may be the greatest year for co-creation between teacher and teaching artist, in which teachers embrace the role as both 'teacher and learner.' This productive collaboration may be an opportune time for students to see creative growth and teaching modeled effectively between teacher and teaching artist; students may internalize this co-creation through observation and/or through experience.

Whether students subsequently drop to baseline skill levels or sustain gains in year three may be related to how teachers take the lead and TAs take a back seat in year three. Some teachers thrive in year three when given greater control of their CoTA classroom, requiring only a second pair of hands to support in-class operations. Other teachers tend to struggle slightly with this transition, which could create a classroom learning environment more similar to year one than year two. This is a particular area of inquiry that could be further explored in future CoTA research on the teacher-teaching artist relationship and its effect on student learning.

Beyond the year one to year two burst, we saw a second “burst” of growth between years two and three in *critical thinking* across all students and schools. This is particularly interesting and may suggest that the CoTA program builds upon creative skills sequentially, targeting general creativity in the early years, followed by more critical thinking in the latter half of the program, after solidifying general creativity, collaboration and empathy. Critical thinking can sometimes be one of the more difficult 21st century skills to cultivate, given that it may require a certain level of foundational knowledge or skills in a subject area before being able to engage more deeply in critical analysis. The trends in the NGCS data may support the idea that other creative skills are more easily cultivated and may lay the groundwork for advancing critical thinking skills.

In terms of gender, there are no notable differences in student NGCS scores apart from the general finding that girls performed consistently better than boys across all scales and survey administrations. Girls and boys showed growth in similar areas on the NGCS, including *critical thinking* and *creative self-efficacy*, which suggests that there were no gendered differences in CoTA participation. Instead, girls had a higher baseline and maintained the higher performance throughout the intervention and assessment.

In summary, the CoTA NGCS findings indicate that the students in the program demonstrate a sustained increase in *demonstrated creativity*, *creative self-efficacy*, *empathy*, and *critical thinking*, as well as consistently high levels of *collaboration*. Because these findings mirror some of the previous qualitative findings, these gains may be related to students’ participation in the three-year CoTA program. However, and as mentioned previously, it is difficult to make causal conclusions about the CoTA program’s effect on student NGCS scores due to a lack of control group for comparison. The growth noted in this research may be related to CoTA, as well as other factors present in the Beacon Schools culture, community, or socio-cultural ecosystem or students’ natural cognitive development.

4.1.5 Qualitative Results

We now present the qualitative data insights drawn from in-class observations, teacher reflections and surveys, and principal focus group discussions. In summary, the following conditions appear to have cultivated a learning environment conducive for creative engagement and growth:

- (1) Opportunities for deep learning
- (2) Supported small group learning settings
- (3) Opportunities for ownership
- (4) Opportunities to “see”
- (5) Teacher/Teaching Artist comfort with balanced “chaos”
- (6) Process over product

We detail each of the conditions with evidence from the data and then conclude with a summative synthesis.

Opportunities for deep learning

CoTA projects are ten-week creative endeavors that blend interdisciplinary content with creative tasks and problem solving. When implemented well, this design results in opportunities for students to engage in deep learning—the process in which learners build cross-disciplinary connections and think critically and creatively about project content. The Beacon school principals have noticed that the CoTA training has equipped teachers to push for deep learning in CoTA classes and projects:

“I think part of what CoTA has done is to encourage the teachers to say, “Now explain. So we’re creating this, but we’re not just drawing a picture or creating a model. Now you have to explain it. Tell a partner.” – Beacon School Principal

Several principals noted specific examples of deep learning in their schools. One was particularly taken by a social studies tableaux project that went above and beyond typical classroom projects:

“Normally, students write about [a story], they tell you what they learned, and they draw a picture maybe to go along, you know, traditional. But this was like, ‘Well how did they feel on the Underground Railroad? How did they look – what would be their expression?’” – Beacon School Principal

Another noted a specific instance in which a CoTA teacher moved a student from standard routine learning to deep thinking and learning:

“When we came for our final wrap-up, one of the sixth-grade girls had made this diorama of a scene of the book she was reading. And it was just simple. She said, “I’m done.” And the teacher said, “You need to really show what everything represents. It needs to be richer, it needs to be deeper.” This child thought about it and thought about it, and then got really creative, and started taking the high-powered words from the story and writing them in the diorama, on the carpet, on the walls. And it was just visually beautiful. Then, it was so powerful. You could see she really did get those deeper concepts of the book. Before, it was just a bedroom. Now, it’s full of symbolism. The teacher pushed that.” – Beacon School Principal

This evidence suggests that opportunities for deep learning—through immersive, long-term and interdisciplinary, arts-integrated projects—are ample in CoTA when teachers and teaching artists intentionally and thoughtfully push student thinking. And when students engage in deep learning, they cultivate their creative aptitude.

Supported small group learning settings

Because CoTA classes include at least two teachers—a Beacon School teacher and a CoTA Teaching Artist—students have the opportunity to engage in supported small group learning settings. These learning spaces are more intimate than whole class settings and provide focused attention from the IP or TA, which enables students to more thoughtfully and rigorously focus on their project.

For example, there were 29 students in the observed CoTA classroom and students were regularly tasked to work in small groups independently or with direct support from the IP or TA. The CRoC researcher often noted that small groups of students who were working directly with the IP or TA made deeper and faster progress on their project:

“The IP’s smaller outdoor group quickly moved through photographs. The IP allowed them to set up their scenes without much emphasis on time, and let them get off task slightly with digging holes and playing with the water hose.” – In-class Observation

This observation about small group learning is particularly intriguing; the students working directly with the IP were not demanded to focus on moving quickly through their project task (taking photographs for a comic book). In fact, students were given the time and space to “get off task” or wander and play with their materials before making significant progress. Yet, even with the moment of playfulness, the students moved more quickly through their assignment when with the IP than the other small groups that were working independently.

The evidence suggests that within CoTA, focused and supported small learning environments may be conducive to advancing students’ creative learning and growth. These settings, when cultivated by a well-trained IP or TA, appear to strike the balance between creative open-endedness and focused rigor—a balance that enables students to consider “what if?” and embrace creative wanderings and ideas while still staying focused and connecting their creative ideas to their projects.

Opportunities to take ownership

Building upon the previous theme, students in the observed CoTA class had many opportunities to self-lead or take ownership of their project. However, students did not always embrace the opportunity to self-lead; it appears that over time, students built the capacity for independence by having opportunities for ownership that were supported, or scaffolded, by the IP or TA. For example, in an observation during the first few weeks of the project, a CRoC observer noted:

“The students that actively respond to the art form are the students that the TA moves closer to the front, and the students who actively ask the IP for support. There are very few students who self-lead apart from those groups, except a table of five students who are closest to the windows. They write independently.”

However, several in-class observations later, the CRoC observer noted that, “*the students, regardless of their pace, are self-leading and working on their individual points of the project*” and had “*a lot of independence in their ability to work on different aspects of the projects individually or in small groups at the same time as other students focus elsewhere.*”

CRoC researchers noted certain IP behaviors that may have helped students, over time cultivate their abilities for independence and ownership of their project. For

example, the IP was often “*very engaged with the students and made suggestions*” about their work and never told students what to do or how, but instead gently guided them through the somewhat abstract creative processes. CRoC observers noticed that the IP offered targeted, yet non-intrusive support that helped even the most disengaged students embrace their project with independence and energy:

“The IP walked outside to check on the photography group and then walked back in and spoke to a student in a very caring way. The student was not participating. The IP gently suggested, “Let’s set that one up, that one’s easy.” He gave suggestions with regards to how to add to the picture that the student had drawn.”

The IP seemed attuned to the need to facilitate students’ ownership and made regular and seemingly natural efforts to support students in this way. Thus, over the ten-week period, students grew into ownership of their project, which in turn may have created more opportunities to engage in authentic deep and creative learning.

Opportunities to “see”

When implemented well, CoTA also provides students with the opportunity “to see” without being told where to look and to cultivate the agency to develop and discover a creative vision for their projects. The observed IP and the TA were intentional about giving students the opportunity to discover their own creative and artistic vision for their project without intrusive adult influence. The IP often noted in planning sessions or in personal conversations with CRoC researchers “*how hard it is not to let his own artistic point of view interfere with the students. He wants them to have fun and doesn’t want to interfere.*” CRoC observers noted that the IP succeeded in giving his students the opportunity for creative agency several times throughout the ten-week period:

“The students were very focused on what they wanted and picked apart scenes to make sure they matched their vision.”

“[When planning locations for student photographs] the IP points out different locations he has in mind but suggests they let the students find locations on their own as well.”

Although students were given many opportunities “to see” in the observed Year Three classroom, Beacon School Principals noted that some CoTA teachers still struggle to afford students this level of creative vision and independence, perhaps due to pre-existing teaching habits:

“I find with our teachers who struggle, they still have a hard time just letting kids create their own creation. Even with some of the CoTA projects, you have some freedom, but there are still constraints. I think that might just be that elementary school teachers are used to controlling the entire [classroom operation]. So, we’ve made some gains, but I feel like that’s still a weak area for our school. [...] We want to give students the arts skills, but let them create! [...] I’m not down on it, because we’ve made a lot of progress, but still that battle – just to let kids create what speaks to them.” – Principal

“The other side of it is, when you do tell them, the kids, then they get stuck: “What do you want me to do? How do I start?” “Figure it out!” That’s another big piece. But that’s probably the effect of the fact that teachers have been so scripted.” – Principal

The combined evidence from in-class observations, conversations with the IP, and the principal focus group suggests that the CoTA program can create the space for teachers to allow students “to see,” but that it can take time for teachers to feel comfortable embracing the unknown that comes with giving students creative license and vision. However, when students are afforded the opportunity “to see,” they rise to the occasion and grow in their creative capacity and independence.

Teacher/Teaching Artist comfort with balanced chaos

Students also appear to thrive in CoTA classes when the IP and TA demonstrate comfort with “chaos,” such as high levels of noise, conversation, movement, messy materials, uncertainty, etc. The observed IP appeared particularly comfortable with classroom noise, clutter, and movement, which allowed students to roam and engage freely.

A slightly “chaotic” classroom can become a safe place for experimenting, playing, and creative learning because the space is open and not restrictive or reactive to new or unusual types of creative engagement. However, CRoC researchers noted that too much chaos can sometimes distract from the focus that is necessary for deep learning and authentic creative engagement. For example, in one in-class observation, the CRoC researcher noted,

“The props and costume design took up most of the hour they had to work, and the photographs were taken hastily [...] the students are given free reign and took almost the full hour to get ready for the three scenes they shot.”

In this instance, the classroom chaos may have been excessive and distracting, keeping students from deep and meaningful engagement in the material and from making progress. The TA often appeared stressed in these moments, while the IP remained relatively calm throughout. At one point, the TA became visibly angry and terse with the students and “*exhausted by the uncontrollable class, focused on creating a prop with one of the quieter students*”—a less than ideal response to chaos. The IP, on the other hand, often appeared calm and continued to nurture student thinking and creativity.

The observations of the Year Three IP suggest that comfort with the right amount of “chaos” may be a key strategy to cultivating students’ creative growth; it enables students to feel comfortable exploring new ideas and ways of learning, while keeping them focused on putting their energy towards the task at hand.

Process over Product

Finally, the CoTA program often places emphasis on the creative learning process as opposed to the creative product, which enables students to enjoy and focus on their journey and growth as opposed to a completed project. This approach is typically different from normal classroom learning that tends to be results-oriented and driven by performance on standardized tests. When teachers realize and show students that the process of learning is just as valuable, if not more so, than the product of learning, students have the opportunity to engage meaningfully in creative growth and learning, however long the process may take, instead of rushing towards a final product.

Some Beacon School teachers have enjoyed this redirected focus on learning as evidenced in their CoTA surveys and planning session observations:

"I greatly appreciated artists that took the kids on a "journey" through some of the artistic processes. The project outcomes were satisfactory." – Beacon School Teacher and former IP

"There is a strong sense that the IP cared more about the process of the project than the finished product."

However, some Beacon School Principals feel that teachers may be resistant to this new approach:

"Teachers are still worried about the final product, which I understand. The final product is important. I mean, that's what we show our parents, and that's what we show off. So, I don't know, I'd like to see us stretch more, just in general as an arts school. We just need to get more where it's student-led with student ideas." – Beacon School Principal

Although some Beacon School teachers may struggle to embrace the notion of creative process over product, it is likely that, if and when they embrace this mentality, students benefit and grow their creative capacity.

4.1.6 Summary of Student Transformation

To summarize, we identified six conditions present in CoTA classrooms that appear essential to cultivating student creative transformation: opportunities for deep learning, supported small group learning settings, opportunities for ownership, opportunities to "see," teacher/teaching artist comfort with balanced "chaos," and focusing on the creative process over the creative product. In total, these combined factors align with principles that are well documented in the creative education literature on how to cultivate creative learning⁶: creating *time* and *space* for

⁶ See: Craft, A., McConnon, L., & Matthews, A. (2012). Child-initiated play and professional creativity: Enabling four-year-olds' possibility thinking. *Thinking Skills and Creativity*, 7, 48-61.

Craft, A. (2013). Childhood, possibility thinking and wise, humanising educational futures. *International Journal of Educational Research*, 61, 126 – 134. doi: 10.1016/j.ijer.2013.02.005

exploring, problem solving, and understanding and allowing students the opportunity to embrace greater agency in their creative process, while teachers embrace the role of supportive facilitator. The presence of these conditions, as noted in our observations, supports the quantitative results and student growth in creativity as indicated on the NGCS: students experienced significant gains in *creative self-efficacy, demonstrated creativity, critical thinking, and empathy*. High levels of *collaboration*, which could be related to opportunities for ownership, supported small group learning settings, opportunities to “see” and focus on the creative process over the creative product. Thus, the quantitative and qualitative data provide complementary perspectives and confirm the depth of student transformation.

4.2 Teacher Transformation

The CoTA program focuses on the professional development of teachers, with the ultimate goal of advancing student creative learning and development. Yet, it is perhaps the Beacon School teachers who experienced the greatest creative transformation, over the course of ten-week projects and throughout the three-year program. To examine teacher creative transformation in Year Three, the research team collected qualitative data from planning and in-class observations, teacher surveys and reflections, principal focus groups, and superintendent interviews. We present our findings according to two teacher-focused guiding questions. The following themes emerged related to teacher creative transformation in the CoTA program:

What factors in and beyond CoTA enable teachers to become expert designers and facilitators of arts-integrated (AI), project-based learning?

- (1) Strong collaborations with TAs
- (2) Teaching and learning
- (3) Comfort with “chaos”
- (4) A second set of hands

If the goal is for teachers to reach “expert” level in project-based learning through the design and facilitation of arts-integration units, what would teachers need in the future to keep growing as practitioners in this field?

- (1) Finding fun in meeting curriculum standards
- (2) Support from Principals
- (3) Collaboration and support among teachers
- (4) Making it clear that Year Three is a “Transition Year”
- (5) Annual school-wide CoTA themes

We detail all of these themes with evidence from the data and conclude with a summative synthesis.

4.2.1 What factors in and beyond CoTA enable teachers to become expert designers and facilitators of arts-infused project-based learning?

CoTA aims to train teachers to become ‘expert designers and facilitators of arts-infused project-based learning’ so that they remain lifelong arts-integration and project-based learning practitioners. Throughout the three-year study we have found several repeated factors that appear to contribute teachers’ excellence, including strong collaboration with TAs, the ability to be both teacher *and* learner, and comfort with “chaos” while in their CoTA classroom. This year we have found those three themes to be influential again, in addition to the benefits of “having a second hand” in the classroom.

Strong Collaboration with TAs

Throughout the three year study, we have found that strong collaborations with Teaching Artists is the most influential factor that enables teachers to become excellent arts-integration practitioners. In the third year of the study, we see this again in the observed IP classroom and planning sessions; the IP and TA maintained a strong, communicative, and balanced relationship, even when stressed. The CRoC observers noted how the TA-IP’s strong relationship manifested in body language and conversation in several planning sessions:

“The IP and TA decide collectively on their plans for the next meeting. They decide to storyboard together, with the students, to “create an example.”

“There is a great rapport between the TA and IP. Both were sitting slightly turned into each other and they began to chat about comic books.”

“They began to brainstorm about what scenes they had done in the prior in-class session, finishing each other’s sentences as they did.”

During planning and in-class sessions, the pair also appeared to balance each other’s energy while working towards a common goal:

“The TA and IP seem to have similar goals for the project itself, but may not have similar intentions for the process. The TA leads the discussion with tangible deadlines, while the IP often focuses on the more abstract details.”

“This collaboration seems to rely on at least one of the two partners remaining calm while the other remains urgent. In many ways this grounds the collaboration and allows for some leeway.”

The findings indicate that the TA-IP pair was particularly strong and balanced. This enabled the IP to remain open to and learn new practical strategies. This balance also helped the IP to see what is possible as a teacher to achieve through their arts-integration collaboration with the TA. This sentiment is reflected in Beacon School Principals comments on the power and importance of the TA-IP relationship, too:

“I think [CoTA has] opened up their eyes about their own creativity as adults. Because I think they were scared of trying that on their own. So with the

support of the artists, they actually see it happening right in front of their eyes. [...] They see that as doable now, with the support of the artists. Now they can go on and do it on their own. ” – Beacon School Principal

Teaching and Learning

As noted in previous years of the study, Beacon School teachers appear to grow the most and become the strongest arts-integration practitioners when they approach the process as both a teacher *and* a learner. In previous reports, we noted the importance of the teacher availing herself to learning from the TA; this year, we still acknowledge that learning from the TA is essential (which was evidenced in the qualitative data); but we also acknowledge that learning from the *students* is equally essential because the arts-integration project-based learning is founded upon a learner-centered pedagogy in which teachers become facilitators of and collaborators in deep creative learning. About halfway through the ten weeks, CRoC observers noted that the IP became a true learner in his classroom, alongside of and with his students as they embarked on their creative learning journey:

“I observed that his eyes were everywhere, seeing everything. It seemed that he would take in the whole of the class and pinpoint those students that either needed help or were engaged in something that he himself was interested in. In this respect, the IP (for the first time in the observation process) seemed engaged as a learner – not learning necessarily from the CoTA artist but from the students and the process that they were engaged in.”

It may be critical for teachers to engage as learners both with TAs and with their students throughout the CoTA process in order to become an exemplary arts-integration, project-based learning practitioner; learning from TAs and students appears to be a sign of great openness to the creative process and confidence in the organic unfolding of the creative learning journey.

Comfort with “Chaos”

Creative learning is creative because the process is unknown, open-ended, and experimental. For teachers to be expert arts-integration practitioners they must be comfortable with the uncertainty or “chaos” ” (varying levels of volume, uncertainty, risk, messiness, and activity) inherent to the process. In the first planning session, the IP warned the TA of the potential for chaos and the IP appeared “*unconcerned with the idea that there will be problem ‘reigning in students’ and states that ‘controlled chaos’ is not something he has a problem with.*”

The IP’s behaviors in class mirrored his statement in the first planning session; CRoC observers noted that he demonstrated tremendous calm in the face of chaos throughout the ten-week journey—even more so than the TA:

“For the first time, the CoTA Teaching Artist seemed much more nervous and bothered by the chaos of the room than the teacher. Although this was the IP’s first experience with CoTA he brought a unique attitude and perspective to the arts’ integration. He was the type of teacher that every student wants in 5th grade. It seemed to me that nothing really ruffled his feathers and he was

completely happy with the noise and chaos that having a large group of young people dressing up, improvising, and creating made. He was extremely gentle in describing instructions and details and seemed authentically interested in how each student or group was doing.”

Demonstrated comfort within the chaos is a strong indicator that this IP position can become an expert arts-integration practitioner through the CoTA process. However, not all teachers embrace the chaotic, creative process in the beginning, but Beacon School Principals and Superintendents noted that they saw their teachers being open to risk, uncertainty, and “chaos” in the classroom over time while in CoTA:

“I find [teachers have to be] not afraid to get messy or to make mistakes. Because I think that’s been a difficult piece, because they want everything to turn out right, or there’s a certain way to do it. I think it’s just opening their minds to, “Okay, if you do something and it flops – it’s okay to fail.” For some teachers who I have at my site, that’s a really hard thing, because they’re very “by the book.” But now you’re just seeing what projects they come up with and what they want to have, the experiences they want to have with kids. It’s really neat.” – Beacon School Principal

“I learned a lot about watching the interaction with the teaching artist. [They seemed to be in an] intentionally risk free environment with the teacher. [It created the space for learning that] “this is how we do it together.” – Beacon School Superintendent

The CoTA process appears to help teachers become more comfortable with an openly creative classroom, which prepares teachers to continue their arts-integration project-based learning pedagogies and practices even after the CoTA collaboration ends.

A Second Set of Hands

There can be many logistical constraints and stresses when completing long, multi-faceted, and interdisciplinary projects; these constraints, such as limited time and resources can become significant stressors for teachers and deter them from embracing the arts-integration and project-based learning approach. As one third-year IP noted in an end-of-CoTA survey:

“Some of the preparation work was a bit lengthy. I also thought that some of the projects took a little bit too long to complete. Lastly, some of the projects I wouldn’t be able to do without a second set of adult hands and eyes.”

Although having an extra set of hands is may not be a sustainable approach to arts-integration and project-based learning, it could be an essential step in the process of helping teachers become expert arts-integration practitioners. In the presently observed TA-IP collaboration, it seemed that having the TA and an extra set of hands in the classroom helped the IP focus on cultivating his ability to be an excellent arts-

integration practitioner without stressing too deeply about the logistical challenges. CRoC observers noted the IP's ease and comfort throughout the ten-week collaboration, which seemed to be aided by the TA's support in managing many of the logistics:

"In the classroom, the TA, who was left with 75% of the class is stressed. As with the last session, the students are taking up most of the time trying to set the scenes. The IP has taken several photos but the TA's larger group hasn't produced one. Exhausted by the uncontrollable class the TA focuses on creating a prop with one of the quieter students. The IP is having a lot more fun than the TA."

While the TA took on the burdens of managing a larger group of students, the IP had the opportunity to delight in the process of his students' creative learning in a small group setting. Although the TA will not always be around to support the IP during arts-integration projects—and the logistics of the project may become more of a direct burden to the IP—it seems that having the TA to manage the logistics in the beginning could be essential to letting the IP become familiar with and value the intrinsic joy of the creative learning journey; and once the IP understands the joy and value of the process, he could become more resilient to project stressors in the future and thus more likely to sustain his arts-integration practice.

4.2.2 If the goal is for teachers to reach "expert" level in project-based learning through design and facilitation of AI units, what would teachers need in the future to keep growing as practitioners in the field?

Although CoTA is a three-year intensive in-school program that develops arts-integration practitioners, the organization also realizes that teachers may be likely to sustain their CoTA practice beyond the three years if support structures are established or key techniques are shared. The CRoC team noted several factors, in teacher reflections, principal focus groups, and superintendent interviews, which may help teachers to sustain their CoTA pedagogies throughout their careers.

Finding fun in meeting curriculum standards

Teachers are often stressed about meeting standardized curriculum expectations because of rigid accountability systems that dictate the content and pace of their classroom teaching and learning. This stress can often inhibit teachers from taking on new or more creative approaches to teaching. However, the CoTA program has demonstrated—and can continue to demonstrate beyond the three-years through various resources—that the CoTA approach can be a fun and interesting way to meet curriculum goals and standards. One third-year IP reflected in her end-of-CoTA survey:

"I also really appreciate being able to align our curriculum standards within the arts. It made teaching some subject matters way more interesting, doable, and fun. [...] I love the idea that the CoTA experience integrates the curriculum, and that I was able to think a bit more creatively when teaching my everyday curriculum standards. [...] I look forward to implementing learned ideas and

continuing to grow as teacher within the arts, using many of the ideas/strategies learned with the help of the CoTA program.”

Beacon School Principals also found the CoTA curriculum connection to be an influential factor in encouraging their teachers to continue to use arts-integration and project-based learning strategies beyond the intensive, three-year CoTA period:

“I think Common Core lining up with that was really perfect, to be honest, even though Common Core has had its challenges. But I think one aspect was, how to connect with the information more. Instead of just learning the information, they went deeper, and it really did connect. – Beacon School Principal

We therefore recommend that CoTA continue to link standardized curriculum expectations and CoTA-inspired teaching methods and projects. If teachers feel that they can use CoTA strategies to further (as opposed to in spite of) curriculum goals, they may be more likely to continue to develop their arts-integration practice.

Support from Principals

Beacon School Principals realized that teachers are heavily influenced by the demands and opportunities provided by school leadership. They therefore brainstormed that they can enable teachers’ continued growth and excellence as arts practitioners by providing the relevant support, time, and resources to help teachers succeed:

“Before, it was not even on teachers’ radars to even think of doing a larger scale project or something more in depth. Whereas now it’s, “I really want to do that, but I need these supplies,” or “I need some help with this time.” So I think they’re just starting to ask more technical questions, like how to do it, which I think is healthy. That’s actually the kind of questions you want to get as a principal. “I want to do this, can you help me figure it out?” Yeah! That’s what our job is as principals, to figure it out. Where before, that wasn’t the case. They didn’t even know what they didn’t know.” - Beacon School Principal

“Maybe that’s part of the CoTA moving forward experience with the principals? It could be like, “Hey, we need you to give us an hour every trimester to explore the website. When can we calendar that?” – because that would help me be a better support to them. I’m just thinking of a principal training piece maybe.” - Beacon School Principal

It may therefore be advantageous to add a principal support or training element that would equip principals to best support their teachers’ creativity and arts-integration practice through simple, manageable techniques.

Collaboration and support among teachers

Beacon School Principals also noticed that collaboration amongst teachers could be an effective way to continually develop teachers’ practice as arts-practitioners. Principals have already noticed teachers sharing and collaborating organically while still within the intensive three-year CoTA period:

“I was seeing one teacher who felt very successful with a project that they had done with their class with the support of the artists, and it was a pretty big project for these kids to do. The kids were showing the other teachers and it was so evident that the kids truly learned the content, through this project. And then that got the other teachers [interested]. So then the teacher without the CoTA artist said, “Hey, at our planning time let me show you through it.” Now she is being the mentor. And it really did allow that, “Wow, I did this. I had help along the way, and now I’m going to help them.” I thought that was really great.” – Beacon School Principal

The school-wide share-out reflections also appear to be a prime opportunity for teachers to share and collaborate on CoTA-inspired projects.

“We just had our share-out reflection last week, and we had every teacher share about their project. We had them in triads, and as I was walking and listening to them, you could hear that, “Oh my gosh, that sounds like – I can do that next year in such and such unit!” So there was that excitement. And just being able to see the variety of projects that they don’t get to see because they’re in their classrooms doing their own project, and they don’t know what the 6th grade teacher did. So when we do that coming together and reflection, I think that was very powerful.” – Beacon School Principal

“We didn’t do an everybody share-out, but it was some highlights from each of the main categories. And just the buzz in the room – all the teachers were like, “We need to take this classroom!” Because we have a class where we’re talking about having a maker’s space. It was like, “We need to make a book! Or maybe we could make like a digital –” They started just amongst themselves, like, “How do we share all of this? Do we have a Google Doc, or do we – we could have a webpage, where we put all of our things we use, and a material list, and show the products, and have videos.” They started getting really excited. Like they wanted to put all this extra work in to share the projects so that other teachers can use them. So the excitement is there.” – Beacon School Principal

These comments suggest that teachers are excited and willing to share and collaborate with their peer teachers, if provided the platform, time and space to do so—in person and digitally. The share-outs could be a sustainable structure or way for teachers to continually collaborate and cultivate arts-integration excellence amongst their teaching and learning community. Principals may also consider other online or in-person platforms to cultivate teachers’ teaching, learning, and mentoring.

Making it clear that Year Three is a “Transition Year”

Beacon School Principals reflected that although they were in “Year Three” of the program, it did not quite feel as if they or their teachers were ready for the conclusion of the program; they saw the Teaching Artists continuing to take an integral role on in the ten-week projects in order to support students and teachers to success in their projects:

“I think in year three that the teaching artists, even though they were supposed to pull back, were still too hands on. And they [had] great heart, in a super great way. But, THEY did these books, and they did all of the cutting and all of the preparing, where they should have been guiding the teacher. Instead they kind of jumped in and did it, just to help. But I think that means next year, what’s that teacher going to do now? Because you’re not there! [...] I think, it’s almost when you have a student teacher, when you do it for them, they’re not learning through the process. So [it’s important for the TAs to] really be facilitators instead of doing it for teachers because it has to be real and they won’t have an artist next to them all the time.” – Beacon School Principal

To rectify this issue, principals suggested that it should be emphasized regularly to both teachers and TAs that the third year is meant to be a transitional year; and thus, the projects may be rougher because teachers are taking on the primary lead, but a third year led by teachers, even if rockier, is more likely to build teachers confidence for sustained arts-integration practice beyond the CoTA program. In particular, principals suggested equipping TAs with a set of prompts or questions that can facilitate teachers’ leadership and ownership of the projects in the third year.

Annual School-wide CoTA Themes

Finally, Beacon School Principals discussed that teachers may be more likely to continue their arts-integration practice if they feel supported and united as a school through annual school-wide arts-integration themes. This could keep teachers from feeling too overwhelmed by the thought of designing and fully leading a CoTA-inspired project. Instead, they could build collaborations with each other and while cultivating a strong arts-integration school community:

Principal 1: *“If we could do this again, what would I want to do differently? I almost wish we would have picked one genre, and everyone does this. Like tableaux, everyone’s doing tableaux the first year. I think it almost gives too much choice and ends up everywhere. And some people at the end of it – It just got to be too big. What if we just said, “We’re all going to do tableaux,” because then we could build that throughout our year. [We could] highlight examples, and share how they stretched it. Or maybe by trimester [...] or maybe have two or three choices. It could be a variety, so there’s some choice.”*

Principal 2: *“So that it’s a limited choice.”*

Principal 1: *“Limited choice! Not just open ended, because it made it hard to focus as a school—”*

Principal 2: *“Yeah, and it’s hard...when you share, or you maybe want to gauge the progress, and you can’t because everybody’s doing different things. So that’s probably something I would’ve done, as well.”*

Principal 1: *Yeah, like Year 1, "Okay, you can pick from tableaux, you can pick from," I don't know, the journal, or two or three things that they could select from. Maybe more directed so it could go deeper. And then everyone would at least explore it. And then from there they would have had that experience. But yeah, it was kind of so scattered, it's really hard to gauge what was really effective."*

Principal 2: *"I like that the whole school's focused on one thing! And maybe it is just for the trimester, or a certain amount of months. Because, it gives every student in that classroom [something] for their toolbox. So, when we're talking student choice, and the menu of choices, now that becomes, you know, a choice. And then the next little session, we're all going to do something visual arts. And then that goes in their little toolbox."*

As illustrated in the principal focus group dialogue, an annual-school wide CoTA theme or menu of options could foster community cohesion, teacher collaboration, deep student engagement and skill development, and ongoing teacher development as arts-integration practitioners. We recommend that CoTA consider ways to support principals to develop such a structure during post-CoTA.

4.2.3 Summary of Teacher Transformation

In summary, we found that several conditions help teachers become strong arts-integration practitioners during CoTA that were consistent with previous reports: sustaining strong collaborations with TAs, engaging as a teacher and learner, developing comfort with "chaos" and discovering the joy of the CoTA process with the help of a second pair of hands. We also identified five concrete and practical ways that teachers could continue to develop their arts-integration practice beyond the three-year intensive CoTA programming period: finding fun in meeting curriculum standards, ongoing support from Principals, collaboration and support among teachers, making it clear that year three is a "transition year," and annual school-wide CoTA themes. We recommend that CoTA teachers, principals, and program managers consider ways to continue what appears to be working and try the brainstormed ideas from our collected base of evidence.

4.3 Full-School Community Transformation

The three-year research study has revealed that CoTA has the potential to impact not only student and teacher creative transformation, but also full-school community creative transformation. In the present study, the research team collected qualitative data from teacher surveys and reflections, principal focus groups and superintendent interviews related to the full-school community guiding research questions:

What and how do CoTA-inspired practices lead to sustainable, full-school creative transformation?

How do schools sustain a culture that values the symbiotic relationship between teacher creative development and student creativity when there is a change of principal at a site or when new teachers come on board at a school that is deeply committed to arts integration?

We identified the following themes and recommendations related to full-school community creative transformation in the CoTA program:

(1) Capitalize on the Full Three Years

- a. Make the Culture Explicit & Tap into History
- b. Bring Focus to the Big Picture
- c. Use Year Three as a “Commitment Year”
- d. Develop a Principals Network

(2) Going Beyond the Three Years

- a. Support Teachers to Use CoTA Resources
- b. CoTA TA Consultations
- c. Schools Commit Financial Resources

We detail each of these themes with evidence from the data and conclude with a summative synthesis.

4.3.1 Capitalize on the Full Three Years

The Beacon Schools project provided an opportunity to test if and how CoTA can take root in a full school community during and beyond the three-year program. Principals and superintendents suggest that the program’s sustainability starts on day one (or sometimes even before day one); the norms, practices, and expectations established during the CoTA three-year journey set the standard for program growth and sustenance beyond the three years. Thus, CoTA schools should capitalize on every moment in the process to build structures and systems that will sustain the program. We now present several ideas that emerged from the data on how the Beacon Schools have taken or plan to take advantage of the CoTA program period to ensure sustainability.

Make the Culture Explicit & Tap into History

Beacon School teachers, principals, and superintendents noted that CoTA has provided an opportunity to tap into their schools’ history and values, and reinvigorate their schools’ arts-based identity. Building upon a pre-existing culture or identity is an indicator that the program is likely to be sustained beyond the three-year Beacon school project:

“Our school has always encouraged teaching the fine arts. I think our school has evolved because now we are integrating the fine arts within our everyday curriculum. Often, fine arts was taught as a separate entity, so it is nice to bring new project ideas into our standards based lessons.” – Beacon School Teacher

“From a teacher’s perspective it is seen as an arts magnet school. But our principal did one presentation where he described it as more than a fine arts magnet school. It is a Beacon School.” – Beacon School Superintendent

“Our school’s families absolutely love the fine arts. In fact, many of them send their child to our school because of the fine arts integration.” – Beacon School Teacher

It is clear that the Beacon Schools are currently perceived as arts-integration learning hubs, but sustaining CoTA-inspired school culture beyond the three years can be challenging to achieve, especially with teacher and leadership turn over. The Beacon School principals noted that in order to institutionalize CoTA culture, ***schools should be explicit about their commitment to CoTA in their branding, programming, and ethos, and should connect the CoTA philosophies and practices to school practices that were commonplace prior to CoTA.***

One principal captured this sentiment in the focus group discussion:

“How do you create culture and history? Sometimes it is about helping teachers to see how [a project] is done. [...] Some of it is about having the materials—we have great stage light and sound equipment. And some of it is also history. The upper grades have always put on great plays. [So we tell teachers] “if this is what happened in years past and you’re the new 6th grade teacher, guess what, your class is going to put on this amazing play and we will help you do it.” Some of it is training, some is parent and student expectation, some materials, and it all just comes together around these things. And that’s sort of the power of branding, too. It’s how you talk about your school it’s what you expect from your school. There are certain activities, beliefs, and experiences that happen there despite who the teachers are.” - Beacon School Principal

In other words, sustained full-school creative transformation depends upon cultural commitment from all levels of the community, before, during and after the CoTA program. Principals must promote the brand and be willing to support teachers to embody the principles by providing them with dedicated planning time and ongoing professional development. Teachers can request for resources and advocate for support from the leadership, as they did at one Beacon School when they called for a staff meeting with the superintendent upon learning that their principal would be leaving at the end of the CoTA project; the teachers advocated for the program to their leadership to ensure the new principal would continue the CoTA path that had the current principal had trail blazed.

When all parties take responsibility for explicitly embracing and upholding CoTA-inspired cultural norms and practices during the three-year period, it becomes possible to sustain the full-school community creative transformation beyond the three-year period.

Bring Focus to the Big Picture

Another way to ensure program sustainability beyond the three years is to capitalize on the school leadership's and Teaching Artists' longitudinal program perspective. Some principals felt that the TAs could be program visionaries to regularly remind teachers and school leaders of the program's ultimate aim:

"I think the artists themselves, when they're in there with those teachers I think they focus so much on the task at hand. They need to share more of the big picture. Like, what do we really want students to get out of this? We want them to be creative thinkers. So, it's beyond just the project. Because teachers want to get right to the nuts and bolts. I don't blame the artists. [...] I think they're constrained on time, and they're trying to get right to it, but we just want them to keep [the big picture] on the radar. I think, as principals, that's what we have to do all the time. We have to keep the big picture in mind. Not just the nuts and bolts, but what are we trying to create here." – Beacon School Principal

By focusing on the 'big picture' throughout the intensive three-year program, TAs and principals could strategically and intentionally help teachers to build their capacity to independently implement CoTA. The CoTA program model is designed with this vision in mind, but in practice, TAs and principals may focus more on the daily needs for the program to be successful without thinking about ways to build sustainable systems for ongoing success.

Use Year Three as a Commitment Year

Relatedly, principals also feel that the third year of the program in particular could be a critical moment for solidifying CoTA cultural commitments and sustainable systems. They discussed this in the focus group:

Principal #2: *"I also think that in year three we need to get to the point where we make commitments. What is this going to look like in our school, moving forward? And we didn't really do that, because we were still kind of navigating it. That might help too, with working with the new principal. It's like, "This is the expectation of every new principal." They're not going to usually change it. They're usually going to continue what you did, at least for the first year. But if it's not there, it's really hard for a new principal to come in and say, "I want you to do this once a quarter."*

Principal #1: *"I'm going on third year, so to me that's the thinking too...this year we have to continuously talk about what in the year 2030 – what is [our school]? Because I don't know if I'll still be there and the commitment as a community – the vision for the school needs to be really solid."* – Beacon School Principal

The third year is the transition year and it is clear that school communities long to be intentional with their time to transition to a sustainable arts-integration model. Principals felt that CoTA could and did play a critical role in ensuring that schools take advantage of the third year, for planning and systems development. One

principal noted that the regular contact and support from CoTA was very influential and prompted his 'big picture' mindset:

Principal #2: *"It was really helpful for CoTA to contact me because there are just so many things. At least [that reminder] gets us in that mindset. Because now I'm in the mindset, but it's like, "Oh, three years." Like, I wish I'd started off in that mindset!"*

We recommend that CoTA continue to cultivate intentional, strategic, and sustainable program planning among its schools, especially in the third year, to enable schools to actualize a sustained CoTA culture and program.

Develop a Principals Network

The Beacon School leadership teams also felt that a collaborative leadership network across CoTA schools could be particularly important to sustained success. The Beacon School principals developed this structure early in the CoTA program, but over time, they lost their regular touch-points for collaboration and sharing. They expressed a desire to reinvigorate such a network:

Principal #1: *"And I think it's important that we – I mean, as we move forward with CoTA – that we principals... I know at first we started meeting, and we had meetings often, and then that kind of went away. I liked that. I like visiting each other. It just gave me ideas about – I mean, I never would've gone to [Principal #2's] school."*

Principal #2: *"And you would never have come to mine. I think that needs to come back."*

One of the Beacon School superintendents also suggested that teachers and principals establish a network beyond existing Beacon Schools to share and collaborate. CoTA is well positioned to be an initial coordinating body to develop such networks during the three-year period. Upon completing the three years, coordinating responsibilities could transition to school leadership teams with CoTA acting as an ongoing, light-touch support.

4.3.2 Going Beyond the Three Years

CoTA starts with an immersive, full-school professional development program, but it should not end when the three-year intensive program concludes. All Beacon Schools have expressed an interest in exploring ways to sustain their CoTA culture and commitment, with help and guidance from CoTA.

"There are very few programs where you go three years and then you go cold turkey. I wonder if there's a CoTA easing or ultimately leading to a network of services that we could purchase or participate in some way that might be less than the full CoTA experience, but that I could bring a dance teacher back to do a unit for second graders or something. I think that the part that I'm most concerned about now, beyond the fact that I need my new principal and

teachers trained in this experience is the access to real artists and artists that understand how the arts infuse into the regular curriculum. Until I saw the dance teacher teach how ions and chemicals work, I didn't really see how this could be done. That immigration video is a great way to show it." – Beacon School Superintendent

Principals and superintendents in particular brainstormed strategies and mechanisms that would ensure the program's ongoing success in alumni Beacon schools in the future. We now present several of these ideas and principles:

"I can see a continuum and maybe we ease you down. So... the fourth year is half the package and the fifth year is a quarter of the package and there are options to purchase other services or something. There's got to be a way to continue to be a part of CoTA and have access to new materials or shared units. And that could be a part of the alumni plan." – Beacon School Superintendent

Support Teachers to Use CoTA Resources

There are many CoTA resources made available to teachers through their TAs and online platforms. However, some teachers have expressed a desire for more guided resource packages to ease the logistical planning and pressure that comes when designing an original arts-integration project:

"Many teachers are not seeking to design a project from scratch. They'd like to receive professionally packaged, comprehensive products/lessons/units, including supplies, that they can dissect and customize to fit the needs of their students." – Beacon School Teacher

"The idea generator is what came into my mind. That's where teachers get stuck. That's why they want a book. They want suggestions. They want some sort of resources where it's like, "It doesn't matter what the content is, but I want to do something creative." Well, maybe you do a movement – can a movement fit with this? Is there some sort of idea generator that, you know, maybe your big aha is, "I'm going to do a movement piece with landforms."" – Beacon School Principal #1

"Well those are all on the CoTA website – I mean, that's a great example, like to look at it and say – so they don't feel like they have to come up with all of them, but where to go to find like creative ways to do it on their own. I just think they're very artist-dependent." Beacon School Principal #2

Principals also expressed concern about whether teachers actually use the online resources.

Principal #2: *"The other thing I was interested along with that question is this idea of having the information that's up on a website, how much do you think that's actually accessible by teachers – if the use it."*

Principal #3: *“Not my teachers. I know for a fact they haven’t. And it’s because they know that they’re going to have someone that’s going to help them.”*

Because teachers may not know how to efficiently and effectively use the resources available to them, principals suggest having specific training for that would enable teachers and principals to easily and independently use the resources:

“I feel like one thing that would really help this process, however it looks in the future – as TAs are working alongside the teachers, to really teach them how to use the resources that are out there. So that when the artist is gone, they know how to go to the website and look at these other examples. [...] I think, when it’s just the artist, they can kind of come to depend on the artist, and when the artist is gone, they know how to do that one project, but do they know now where to go to get other ideas.” – Beacon School Principal

“Maybe that’s a fourth year training, to come back and say, “okay, we’re not going to train you any more on these things, because we did that, but we’re going to do a training on how to use the website.” Or we’re going to do training on other websites that are on arts integration that you can find helpful. Just helping them become self-sufficient would be more the idea. I think even after three years there’s still a little more artist-dependency. And now that the artists are gone, I’m more worried that they’ll do the same project that they did last year, because they’re comfortable with that, but then it’s not going to expand.” – Beacon School Principal

Such a training or support mechanism could be developed and implemented during the three-year CoTA period and sustained with semi-regular touch-points or refresher sessions after the initial three years.

CoTA TA Consultations

Beyond resource support training, Beacon School leadership teams expressed a desire for a Teaching Artist consultation system, whereby each school has a CoTA TA contact person who can provide regular ongoing support after the three-year program. There was a strong consensus among principals regarding the need for and benefit of a CoTA TA consultancy program:

Principal #1: *“Teachers want that connection. They want to still be able to bounce ideas, or say “Hey, I want to try something, can we talk through it?” I think that’s going to be really important. Because otherwise, if they get stuck and they don’t have somebody to reach out to, they could just fizzle. And you don’t want that to happen. Because they have grown so much.”*

Principal #2: *“I think having an artist even come out once a trimester, or once every couple of months, for a day, and just saying, alright, Leo’s there all day, teachers can sign up for times, if they want to meet with him.”*

[Lots of agreement]

Principal #3: *Like a consultation.*

Principal #2: *And that puts ownership on the teachers, because they have to come in with, "Look, I'm planning this unit, I'm doing this, I'm really thinking I want to do this, and here –" they have to have a plan already."*

Principal #1: *"And when you send out the email, "Hey, Leo's here –" it keeps it on everyone's radar, like CoTA's still a part of what we're doing. And then they could bring in the website – "Oh, what are you doing a unit on? Let's go to the website! There's five different lessons you could do." And so, again, it's not the artist doing it all, it's showing teachers where to go. Because teachers are really busy. I don't feel like my teachers are lazy or lackadaisical, they're just swamped. And they don't have time. So, that would be a way to give them that support during their school day. We just get a roving sub, and they free people up during the day."*

Principal #3: *"[And it could be the] same person all year, like Leo is assigned to your school, or Renee, or whoever it is, then you can really build that rapport. And they can get to know the staff. They can come to the first meeting and you can introduce them: "They're gonna be here all year."*

Principal #2: *"Even a new principal could join some of those meetings and kind of get a feel for it. "Come join and see what they do." Because you're right, a new principal would be..."*

Principal #3: *"Overwhelmed."*

Superintendents also feel that semi-regular contact with a TA will be essential to sustaining the CoTA-inspired school culture:

"I'm a little worried. We have a lot of new teachers. We have a new principal. And so that is always the concern with a staff developed program that if staff changes, how do you continue? [...] If there was a CoTA alumni program, I'd want to be a part of that. I need our school to continue that. I had one discouraging convo with a parent last spring saying "oh I guess CoTA is going away now, so I guess we're no longer a CoTA school." And I was like, "no wait a second it doesn't work like that." So we need to make sure that perception doesn't take root. But I also need to make sure that the new teachers and principal come on board and have those same experiences and beliefs that CoTA has brought. I would also love to see the connection to real artists continue—to have those conversations between artists and teachers as experienced designers for our students. Because I think if you don't have that real-time connection to artists, you can think "oh, remember 3 years ago when we did that tree. I'm doing things differently now" – but I think always having that contact with an artist there is very powerful. So yes we want to continue. I

don't know how, why, when, where, but we are going to." – Beacon School Superintendent

This TA-contact could be on a consultation basis or, as another Beacon School superintendent suggested, through semi-regular professional development trainings at a district level. Regardless of the model, regular contact with TAs appears to be a highly desired and potentially very impactful mechanism to sustain the CoTA culture and full-school community transformation beyond the three-year program period.

Schools Commit Financial Resources

Finally, several superintendents have suggested that schools allocate some of their internal financial resources—either through grants or other means—to sustain CoTA activities and professional development opportunities. This is perhaps a more typical path to sustainability, but also one that signifies genuine commitment to and value of the program.

4.3.3 Summary of Full-School Community Transformation

In summary, we found that several mechanisms, such as tapping into and cultivating school culture and school leadership networks, have enabled CoTA's sustainability at the Beacon Schools. We also identified several ways to further sustain full-school community transformation in the CoTA Beacon Schools, such as ongoing support from TAs through consultations or occasional district-wide professional development.

We therefore recommend that CoTA schools should capitalize on the full, three-year, immersive program and build sustainable supporting systems during that period. Then, with pre-existing cultural and practical structures in place, CoTA can collaborate with schools to ensure that ongoing, light-touch, yet critical support, is sustained after the three-year immersive program period. We recommend that CoTA principals, superintendents, and program managers consider ways to continue what appears to be working and to explore the newly presented ideas from our collected evidence-base.

5. Three Year Program Summary

We now aim to summarize the key quantitative and qualitative findings across the three-year CoTA program evaluation, addressing each key research area: teacher transformation, student transformation, and full-school transformation.

5.1 Teacher Transformation

Across the three-year study, CoTA and CRoC explored how Beacon School teachers adapt and change their teaching approaches, practices, and habits. In the first year of the study, the notion of *liminality* or the process of being between teachers'

former classroom habits and comfort zone and their new teaching style emerged as an important way to understand the CoTA transformation process.

In year two, we saw the discomfort associated with the uncertain liminal space fade to an extent, with greater comfort and clarity among teachers that they must engage in the CoTA program and process as both teacher and learner. Once teachers appeared comfortable with this dual role, we saw deeper and greater transformation, as well as deeper transformation for students and school communities. In particular, we noted the effect of the teacher-teaching artist relationship on students' development using Bronfenbrenner's ecological systems model in our analyses.

Finally, in year three, we identified several factors that appeared to support teachers to become expert arts-integrated, project-based practitioners: strong collaborations with teaching artists, a willingness to be both teacher and learner, demonstrating a comfort with "chaos," and having access to a second set of hands in the classroom. These findings allowed us to understand which mechanisms are most important to emphasize in the CoTA program in order to support genuine teacher transformation. We also inquired more deeply to determine what additional structures could ensure sustained teacher transformation beyond the three-year CoTA program. We learned that tapping into the school community via principals, peer teachers, other Beacon School and CoTA teachers, as well as the local community could create an ideal environment for sustained arts-integration practice.

In summary, the three-year investigation of teacher transformation yielded insightful learnings about what teachers encounter when engaging in a transformative CoTA experience, how teachers' transformations can ripple out into the community and deepen student transformation, and how to practically design program mechanisms and systems to support teacher transformation during and beyond the three-year CoTA program.

5.2 Student Transformation

As detailed in this report, Beacon School students demonstrated significant and consistent growth in their perceived and actual abilities during the three-year CoTA program period. Although the findings cannot be deemed causal, the descriptive changes mirror the qualitative findings and suggest student participation in CoTA may yield real and meaningful creative growth for students. Beyond the NGCS results, however, our three-year investigation explored what conditions were necessary to ensure student creative transformation while in the CoTA program.

In year two, we explored the various ecological systems that students encounter in the CoTA program and how these ecological spaces influence student development. Specifically, we explored how microsystems (such as teachers), mesosystems (such as the relationship between the teacher and teaching artist), and macrosystems,

(such as Beacon School community) contribute to student development. These findings indicated that, as Bronfenbrenner suggests, in order to best support student learning and creative development, all ecological systems must be activated. Fortunately, the CoTA Beacon Schools program achieves this.

We also found that mesosystems—the places in which teachers, teaching artists and parents come together to interact—appear to be particularly influential on student creative development. It is in this space that students encounter the familiar (teachers & parents) and unfamiliar (TAs & the CoTA approach to learning). If the familiar and unfamiliar blend together cohesively, students have the opportunity to reap the greatest benefits of the CoTA process. As they see their teachers, and in some cases their parents, engage in a new creative process, we hypothesize that students feel supported and safe while embracing new ways of learning and the unfamiliar. In other words, because they observe the familiar, students may feel more comfortable embracing the unfamiliar, as well. Through repeated exposure to these creative practices and a climate in which the familiar and unfamiliar merge, we also hypothesize that students begin to adapt a habit of mind towards uncertainty, creativity, risk taking, and collaboration, which will serve them in their content learning, mastery and understanding, and in the development of their critical, creative, and collaborative higher order thinking skills. Thus, the quality of the meso-system interactions is critically important to student development and learning.

Finally, in year three we explored the specific and practical conditions that are necessary to cultivate a learning environment conducive for creative engagement and growth. We found that student transformation may be greatest in learning environments that provide opportunities for deep learning, support small group learning settings, opportunities for ownership, opportunities to “see,” teacher/teaching artist comfort with balanced “chaos,” and an emphasis on process over product. In total, these combined factors align with principles that are well documented in the creative education literature on how to cultivate creative learning⁷: creating *time* and *space* for exploring, problem solving, and understanding and allowing students the opportunity embrace greater agency in their creative process, while teachers embrace the role of supportive facilitators. The presence of these conditions, as noted in our observations, supports the quantitative results and student growth in creativity as indicated on the NGCS, as well.

⁷ See: Craft, A., McConnon, L., & Matthews, A. (2012). Child-initiated play and professional creativity: Enabling four-year-olds' possibility thinking. *Thinking Skills and Creativity*, 7, 48-61.

Craft, A. (2013). Childhood, possibility thinking and wise, humanising educational futures. *International Journal of Educational Research*, 61, 126 – 134. doi: 10.1016/j.ijer.2013.02.005

In summary, the three-year exploration of student transformation in CoTA yielded both practical and theoretical insights on how to support student creative growth, as well as evidence that students in Beacon Schools experienced genuine and sustained creative growth over time.

5.3 Full-School Community Transformation

Finally, across the three-year evaluation, we explored how the CoTA program could be a mechanism for sustainable, full-school creative transformation. In year one, we explored this primarily through teachers and students, but in years two and three, we expanded our focus to teaching artists, parents, principals and superintendents.

Year two's focus on the ecological systems provided the opportunity to link the practical CoTA program to Bronfenbrenner's broader theory on social systems and methods for change. We found that culture shifts on an institutional and district level are important yet indirect ways to support creative learning among students. In a trickle-down fashion, principals' efforts to systematically adopt and support arts-integration practices make it more possible for teachers to become sustained arts-integration practitioners. As a result, students are likely to encounter arts-integration not simply as an "extra" or special program used only during CoTA sessions; arts-integration and creative teaching and learning becomes a habitual practice and lens through which students understand and learn about the world. The more institutionalized arts-integration practices are, the more likely that true classroom, teacher, and student creative transformation will take place.

Furthermore, we found that although the ultimate aim is to support student learning and creative development, when all ecological systems are activated, it seems that creative transformation and learning is not limited to students. As microsystems (teachers, parents, and teaching artists) interact in mesosystems (teacher-TA collaborations) and exosystems (principals, superintendents, and school and district policies) further support these interactions, the CoTA creative practices permeate all levels of a community. These practices stitch the community together and create cohesive, shared purpose and pride across all levels of the community. Thus, CoTA no longer becomes just a means for student learning; CoTA arts-integration becomes a habit of mind, a way of life, and a way of being in a creative learning community.

In year three, we narrowed the focus to specific and practical practices to ensure sustained full-school transformation during and beyond the three-year program. We found that it is important to capitalize on the full three years of the program, by making the school culture explicit, bringing the school community's focus to the "big picture" vision for the school, and developing sustainable structures like a principal's network during the active three-year period. We also learned that it is important for schools and CoTA to commit to going beyond the three-year period. This commitment looks different for different schools; schools may commit financial resources to the program, while CoTA may commit to providing regular CoTA

teaching artist consultations. While these practical suggestions are important, the act of committing to the program in some tangible form seems to be at the heart of ensuring program sustainability; schools must find a relevant way for their community to guarantee the program, so that transformation is sustained over time.

In summary, the three-year evaluation revealed valuable insights on how to ensure authentic full-school transformation and sustainability. Future research on Beacon Schools after the three-year program may yield additional valuable insights on practical ways to sustain full-school transformation.

End of Report