STArts: Skillful Thinking in the Arts

Final Report

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The University of Kansas
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Table of Contents

Context

The Benefits of Fine Art Instruction

There is much evidence in the research to indicate that a strong arts education relates to academic success across the curriculum. Reported benefits of the arts include the development of the imagination (Greene, 1995), greater motivation to learn (Csikszentmihalyi, 1997), increased student creativity, lower dropout rates, increased social skills (Catterall, 1998; Luftig, 1994), and strengthened memory (Page, 1995). Further, research suggests that arts education positively affects aspects of living and learning beyond the intrinsic values of the arts themselves (Beane, 1997; Gardner & Boix-Mansilla, 1994; Gee, 2000; Hobday-Kusch, 2009; Smilan & Miraglia, 2009). Another benefit of arts integration into the overall curriculum and participation in the arts is increased standardized test scores (Cossentino & Shaffer, 1999; Johnson & Eason, 2013; Johnson & Memmott, 2006; Luftig, 2000; Reardon, 2005; Smithrim & Upitis, 2005). Researchers have also examined the link between arts and other subjects, such as mathematics (Eccles & Elster, 2005; Vaughn, 2000), literacy (Butzlaff, 2000; Colwell, 1994; Cutietta, 1995, 1996; Register, 2001; Wolfe & Hom, 1993), and language (Butzlaff, 2000; Parks & Rose, 1997; Smith & Herring, 1996). Further, research indicates that involvement in arts education has a positive impact on students' engagement in school (Cawthon, Dawson & Ihorn, 2011; Mahoney, Cairns & Farmer, 2003; including lower student attendance and discipline referrals (Johnson & Eason, 2013), increases in self-esteem (Costa-Giomi, 2004), greater connectivity to their academic environment, and stronger commitment to academic achievement (Smithrim & Uptis, 2005).

The Benefits of Critical/Skillful Thinking

There are several definitions of critical and skillful thinking, but Facione (1990) provides a particularly useful one; he defines critical thinking as "purposeful, self-regulatory judgment, which results in interpretation, analysis, evaluation, and inference (p. 3)." Infusion-based research indicates that students who receive instruction infused with thinking skills earn higher scores on subject matter tests (Estes, 1972; Nickerson, 1988-1989; Schoenfeld, 1979). Swartz et al. (2007) notes that a critical thinking approach "involves, at its core, infusing direct instruction in procedures that make thinking more skillful into regular content instruction." Ennis (1985) noted several traits fundamental to critical thinking, including problem-solving, open-mindedness, precision, questioning, and erudition. The research suggests that critical thinking skills are necessary as the paradigm of teaching has shifted from the acquisition of facts to the process of questioning and thinking (Rezer, 2008). Although some teachers feel unprepared to teach critical thinking skills (Innabi & Elsheikh, 2007), teachers who utilize critical thinking strategies in their classroom enhance their students' analytical skills (Marlow & Inman, 1992). Bissell and Lemons (2006) also found that critical thinking strategies clarified course goals, improved student metacognition, and exposed student misconceptions about course content. The importance of critical thinking skills, including curiosity, transfer and communication, has been underscored as essential competencies for life in the 21st century. For example, the Partnership for 21st Century Skills (n.d.) has called for the integration of critical thinking and

problem solving across all areas of the curriculum and Goals 2000: Educate America Act (1994) has identified critical thinking as an fundamental characteristic of quality education.

The Benefits of Critical/Skillful Thinking in the Fine Arts

Critical thinking is an inherent and reciprocal part of an arts-integrated curriculum. The artistic process inherently encourages critical thinking skills; it incorporates elements of reflection, analysis, evaluation, refinement, and synthesis – all of which are important elements of critical thinking (Idaho Commission on the Arts, n.d.; Lampert, 2006). Marshall (2006) stresses the idea that critical thinking is a natural part of arts education: "Art education principles represented in standards and framework necessitate lessons that go deep; mining the concepts behind images, ideas and processes – making a web of connections between…other domains and ideas" (2006, p. 19). Further, Amdur (1993) links arts education to critical thinking skills via contextual inquiry, which, he states, is consistent with arts education and arts integration as it encourages and empowers students to question ideas and concepts across disciplines.

Arts Education and Professional Development

Professional development is defined by Elmore (2004) as "any adult learning activities that are designed in some way to increase knowledge, skills, abilities and understanding of educators" (p. 93) Gusky (2000) expands on this definition to include student learning as a long-term outcome of an educator's participation in professional development. There is much research indicating that arts educators have limited opportunities for subject-specific professional development. Sabol (1998, 1999, 2001) noted that frequently, the professional development that arts educators receive is unrelated to their specific classroom needs. Although some arts educators choose to participate in fine arts-specific professional development either through pursuit of masters degrees or professional conferences, these options are not necessarily available to the majority of arts educators because of cost, lack of administrative support, scheduling or availability (Sabol, 1998, 1999, 2001, 2006). Research indicates that, for schools striving for a strong arts curriculum, success is more likely when built on a strong professional development model, utilizing research-based effective professional development principles, including ongoing collaborative relationships, mentoring, etc. (Burnaford, 2009; Wilcox, Bridges & Montgomery, 2010).

About Kansas City, Kansas Public Schools

The Kansas City, Kansas Public Schools (KCKPS) is an urban district, serving more than 21,000 students in over 40 schools. KCKPS provides educational opportunities for students from a variety of ethnicities and socio-economic levels at the elementary, middle and high school levels, including exceptional education schools and charter schools. Districtwide, 45.50% of students are Hispanic/Latino, 33.97% of students are Black/African American, 12.60% are White/Caucasian and 7.93% are classified as Other. Currently, 90.86% of KCKPS students are considered economically disadvantaged. KCKPS students not only represent socioeconomic diversity – they also represent language diversity. In comparison with the Kansas

state average of 8.3%, 26.3% of KCKPS students are English Language Learners. This ELL percentage has increased by more than 10% between 2003 and 2013.

About Project STArts: Skillful Thinking in the Arts

Realizing the importance of a strong arts education rooted in critical thinking, and understanding the need for fine-arts specific professional development opportunities for fine arts educators, in 2011, KCKPS partnered with the Music Research Institute of the KU School of Music and the Institute for Educational Research and Public Service (now known as the Center for Public Partnerships and Research) to create Project STArts: Skillful Thinking in the Arts (STArts). This partnership resulted in a three-year grant award in 2011 from the US Department of Education to provide professional development to arts educators in the KCKPS district. The initiative was created to enhance and strengthen the standards-based arts education programs delivered in music, visual arts and drama, and to fill the void for targeted professional development opportunities available to arts educators. STArts was designed to provide two intensive weeks of professional development each summer for three years to a cohort of educators, with follow-up professional development offerings in the fall and spring. Through this intensive and sustained professional development, the STArts curriculum aimed to provide participating fine arts teachers with the tools and knowledge to infuse their classrooms with critical thinking/skillful thinking. Further, as a result of their participation in STArts, teachers would also expand preexisting benchmarks and create additional indicators within the framework of the State and National Arts Standards that incorporate critical/skillful thinking skills, techniques, and assessments. The STArts project was ultimately intended to promote a more meaningful learning experience in all arts classes in KCKPS, while also teaching students invaluable transferable skills that can improve their academic performance across the curriculum.

Method

Purpose of the Project

The purpose of Project STArts: Skillful Thinking in the Arts was to provide sustained, intensive and subject-specific professional development opportunities to fine arts educators in the Kansas City, Kansas Public School District. The STArts curriculum aimed to provide participating fine arts teachers with the tools and knowledge to infuse their classrooms with critical thinking/skillful thinking, thus transforming what is currently occurring intrinsically in their students into an intentional act.

Project STArts was based on the following overarching goal: To strengthen the structure of standards-based arts instruction by infusing Skillful Thinking into all aspects of arts instruction and assessment, which will further advance the education of the whole student. This goal was accompanied by four objectives, which provided direction for the activities of the project:

1. KCKPS Teachers will gain skills and knowledge that will enable them to integrate Skillful/Critical Thinking techniques into the benchmarks and behavioral indicators for the National Arts Standards.
2. Teachers will incorporate Skillful/Critical Thinking techniques into their classrooms so that higher-order thinking is being taught along with material that addresses the National Arts Standards. Teachers will model these skills through transformed teaching techniques, which will result in an improved classroom environment.
3. Students' acquisition of Skillful /Critical Thinking will lead to academic gains, including improvements on the national arts standards.
4. An innovative train-the-trainers model will allow the Skillful/Critical Thinking benchmarks and behavioral indicators to be maintained after the life of the grant.

Staffing

Project STArts represents a collaboration between Kansas City, Kansas Public Schools, the Music Research Institute at the University of Kansas, and the Center for Public Partnerships and Research (CPPR) at the University of Kansas. Figure 1 outlines the key staff for Project STArts:

Figure 1. Key Personnel for Project STArts

Name	Title	Role	Affiliation
Jean Ney	Coordinator of Fine Arts and Physical Education	Project Investigator (2012-2013)	KCKPS
Jodie Lin	Coordinator of Fine Arts and Physical Education	Project Investigator (2014-2015)	KCKPS
Christopher Johnson, Ph.D.	Professor, Music Education	Professional Development Instructor	Music Research Institute, The University of Kansas
Melissa Brunkan, Ph.D.	Assistant Professor, Music Education	Professional Development Instructor	The University of Kansas, Louisiana State University

Name	Title	Role	Affiliation
Becky Eason, Ph.D.	Associate Director, CPPR	External Evaluator	CPPR, The University of Kansas
Jenny Memmott	Associate Researcher, CPPR	External Evaluator	CPPR, The University of Kansas
Helen Windhorst	Elementary Art Teacher	Instructional Coach	KCKPS

Structure of Program

The STArts Professional Development model is founded on Guskey's (2000) theory of effective Professional Development. According to Guskey (2000), successful Professional Development should be 1) intentional, 2) ongoing, and 3) systemic. With Guskey's theory in mind, this goal was accomplished through intensive and sustained teacher professional development (*intentional*). The Professional Development offered through STArts will also be *ongoing*: Teachers participated in a two-week Summer STArts Institute, and received ongoing support throughout the academic year with face-to-face meetings with an Instructional Coach. Participants also participated in refresher sessions with professional development instructors throughout the school year. Lastly, STArts aimed to provide *systemic* professional development to fine arts teachers in KCKPS. Through the STArts program, higher order thinking braided together in an energized curriculum with engaged students, would potentially result in positive changes to the school culture in the participating schools.

The two-week intensive Summer Professional Development was held annually at a central location in the KCKPS district. This two-week long session (one week at the beginning of the summer and one week at the end) had academic integrity such that six hours of graduate credit were awarded to participants after completion. The Summer Institute offered an opportunity to increase proficiencies in using critical thinking/skillful teaching techniques. Participants also learned specific strategies and research-based techniques to assess these skills. During the Summer Institute, each 8-hour class day had two parts, with a morning focus on the theoretical and an afternoon focus on the practical. During the first week of instruction, the morning class covered all aspects of critical thinking/skillful thinking in the educational setting. Lecture topics included: 1) Critical thinking—why it's important and how is it different; 2) teaching critical thinking; 3) metacognition; 4) using critical thinking in writing and communication; 5) assessing critical thinking and 6) developing a thinking-based curriculum. The afternoon classes took a constructivist approach (Gordon, 2004), providing participants the opportunity to put into practice the theories they learned that morning.

During the second week of classes, teachers spent mornings developing benchmarks and identifying key behavioral indicators as they collaboratively created new standards for their districts, infusing the concept of critical thinking/skillful thinking throughout the matrix. Teachers then spent afternoons creating rubrics designed to assess student achievement on these standards.

The Summer Institute was followed up with ongoing support throughout the academic year from the

Instructional Coach and the professional development instructors. The Instructional Coach visited each participating teacher approximately twice a semester for an hour in the Fall and Spring following the intensive coursework. During these visits, the Instructional Coach provided immediate feedback to the teachers regarding their incorporation of critical thinking in their lesson plans. Teachers also attended three professional development days of follow-up training during the subsequent school year. These trainings included check-ins with teachers and provided participants the opportunity to problem-solve any issues that have arisen during the implementation of their new critical thinking-infused lesson plans.

Figure 2. Schedule of STArts activities.

Action Item	Timeframe
Teachers recruited for participation.	Winter/Spring
Teachers selected as "Peer Instructors"	Spring
Teachers complete pretests and complete enrollment documents.	Late Spring
Teachers allow External Evaluators in classroom for pre-observations.	Late Spring
Teachers participate in 60 hours of Professional Development coursework.	Summer
Teachers complete posttests.	Summer
Teachers receive classroom visits and coaching sessions from Arts Infusion Coach approximately 3x a semester.	Mid Fall-Spring
Teachers allow External Evaluators to visit classroom for post-observation.	Late Fall
Teachers participate in three hour-long follow-up Professional Development sessions.	Fall-Spring

Participants

Three cohorts of students participated in Project STArts between 2012-2014. During 2012, the first cohort of participants was comprised of 40 fine arts instructors in the KCKPS district, representing elementary, middle and high school in the subjects of music, band, orchestra, strings and drama. During 2013, the second cohort of participants represented 36 fine arts instructors from KCKPS, again representing elementary, middle and high school across music, band, orchestra, strings and drama. The third cohort of STArts in 2014 represented a shift in participants: the 26 participants included not only fine arts educators, but also general classroom teachers from across the district.

Figure 3. STArts Participants 2012-2014

Year	Cohort	# of Participants	Types of Participants
2012	Cohort 1	40	Fine Arts Educators
2013	Cohort 2	36	Fine Arts Educators
	Teacher Leaders	10	
2014	Cohort 3	26	Fine Arts and General Classroom Educators
	Teacher Leaders	8	

A key aspect of the STArts model was focused on a "Train-the-Trainer" component. The peer instructors who demonstrated the highest levels of accomplishment in Year 1 were brought back as peer assistants in

the Summer Institute for Year 2. This same process occurred after the second year, with Year 2 teachers assisting for Year 3, while the Year 1 peer assistants from the second year took over the majority of the instruction (under supervision) the third year. In 2013, 10 participants from Cohort 1 returned as peer instructors and helped to facilitate the intensive summer professional development. In 2014, eight participants from both Cohort 1 and Cohort 2 facilitated the intensive summer professional development.

Quantitative Methods

Three primary sources of quantitative data were collected to assess teachers' gains in critical thinking skills and their ability to implement these skills into the classroom.

Knowledge-Based Assessment

A knowledge-based assessment was given to each cohort's participating teachers in the Spring semester as a pretest and again following the intensive summer professional development session as a posttest. This 20-question assessment consisted of short essay questions regarding the teachers' knowledge of critical thinking skills and techniques, as well as examples of applications in the classroom. The assessment was worth a total of 54 points. The assessments were scored by evaluators using a validated rubric. Results were analyzed using paired sample t-tests, which adequately reflect whether differences between pre- and post-test results among same samples are statistically significant.

Critical Thinking Disposition Assessment

A Likert-based assessment of teacher and student use of critical thinking skills in the arts education classroom was also administered as a pretest in the Spring and again as a posttest in the Fall for each cohort. The assessment was adapted for the fine arts classroom from a similar assessment created by USDE grant recipients in Alameda County, CA. Although the assessment was not used as an official assessment in terms of reporting to the US Department of Education, we found the information in the assessment to be a useful tool in gauging participants' knowledge of critical thinking, as well as their ability and willingness to implement these skills into their classrooms. The assessment consisted of 21 questions, ranked on a seven-point Likert scale (1=strongly agree, 2=disagree, 3=disagree somewhat, 4=undecided, 5=agree somewhat, 6=agree and 7=strongly agree). Questions included the following:

- Do your students consistently choose materials, tools and methods purposefully and use them skillfully?
- Do you offer students opportunities to reflect on their peers' work?
- Do your students work on projects collaboratively?
- Do you incorporate observation/listening/attending time into your instruction?

Results were analyzed using paired sample t-tests to compare outcomes pre/posttest.

Classroom Observations

The evaluation team used classroom observations to assess whether participants were implementing critical thinking/skillful thinking skills into their instruction. The observations were conducted in the Spring as a pre-observation and in the Fall (following the intensive summer professional development) as a post-

observation. Observations of randomly selected participants across each of the three STArts cohort were also conducted at the end of the project, in 2015. The observations (for one class session of teaching) were scored using a rubric consisting of four items related to critical thinking/skillful thinking:

- Whether the teacher modeled complex thinking processes for their students
- Whether the teacher demonstrated the steps necessary to problem solve
- Whether the teacher modeled guided self-assessment and self-critique either in groups or individually
- Whether the teacher modeled the transfer of knowledge to other classes and subject areas.

Each item was scored on a scale of 1-4, with the following breakdown (total of 16 points possible):

- 4 = Consistently demonstrates
- 3 = Occasionally demonstrates
- 2 = Rarely demonstrates
- 1 = Does not demonstrate

Results were analyzed using paired sample t-tests to compare pre and post-observation scores.

Qualitative Methods

Participants also engaged in two methods of qualitative data collection: focus groups and interviews. Both focus groups and interviews were conducted to assess perceived changes in knowledge and skills over a participants' involvement in the STArts program. The results of both were analyzed using both trend and content analysis.

Focus Groups

Focus groups were conducted with participating teachers at the end of their participation in the intensive summer professional development. These focus groups were designed to elicit feedback from participants regarding perceived changes in their teaching and their classroom as a result of their participation in STArts. Focus groups were also conducted during professional development sessions throughout the school year for each Cohort. Additionally, two focus groups were held in February 2015 consisting of individuals from all three STArts Cohorts to collect final thoughts and impressions.

Interviews

Evaluators conducted semi-structured interviews with selected participants from across all cohorts in 2015. Interviews were one-on-one and were held in the participants' classrooms. The interview questions focused on the individuals' participation in the STArts program, to include their perceptions of how their teaching had changed as a result of the program. Participants were also asked about what techniques had been most successful for them, and what had (and had not) "stuck." Interviews typically lasted approximately 30 minutes in length. All interviews were transcribed and analyzed using content analysis to identify common themes.

Findings

The findings of the STArts project are organized below by assessment item and by emergent themes in the qualitative analysis.

Quantitative Methods

Knowledge-Based Assessment

Each cohort of STArts participants took the knowledge-based assessment as both a pre-test (prior to their participation in the summer professional development course) and post-test (following the summer course). Figure 4 displays the mean pre- and posttest scores for each cohort (results are based on a total possible score of 54 points), whereas Figure 5 outlines the significance of the difference of the pre and posttest across cohorts.

Figure 4. Mean Pre- and Posttest Results for Knowledge-Based Assessment

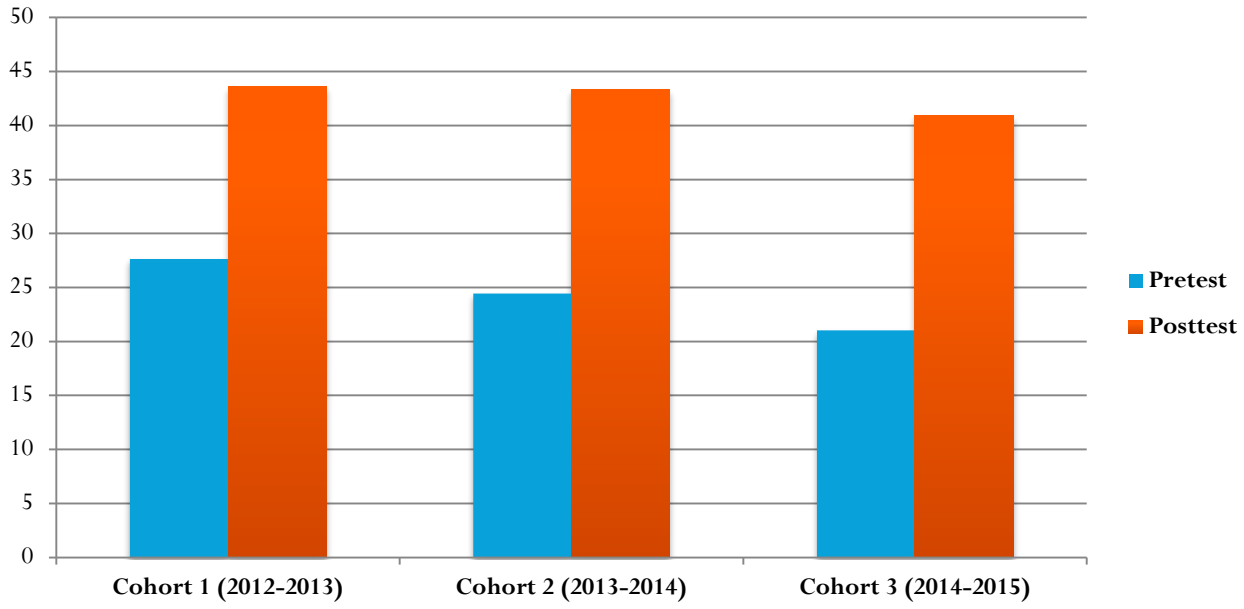

Figure 5. t-statistic and p-values for Knowledge-Based Assessment

Cohort	t-statistic	p-value
1	$t(37)=21.41$	$p<.001$
2	$t(33)=13.07$	$p<.001$
3	$t(25)=12.26$	$p<.001$

Across each cohort, there was a statistically significant difference between participants' pre and posttest scores, indicating that the STArts program had an impact on their understanding of critical thinking skills in the classroom.

Critical Thinking Disposition Assessment

Each cohort of STArts participants took the Critical Thinking Disposition Assessment as both a pretest (prior to their participation in the summer professional development course) and posttest (following the summer course). It should be noted that for Cohort 3, only the arts educators involved in the program took this assessment as it is written for a fine arts classroom. Figure 6 displays the mean pre- and posttest scores for each cohort (results are based on a total possible score of 147 points), whereas Figure 6 outlines the significance of the difference of the pre and posttest across cohorts.

Figure 6. Mean Pre- and Posttest Results for Knowledge-Based Assessment

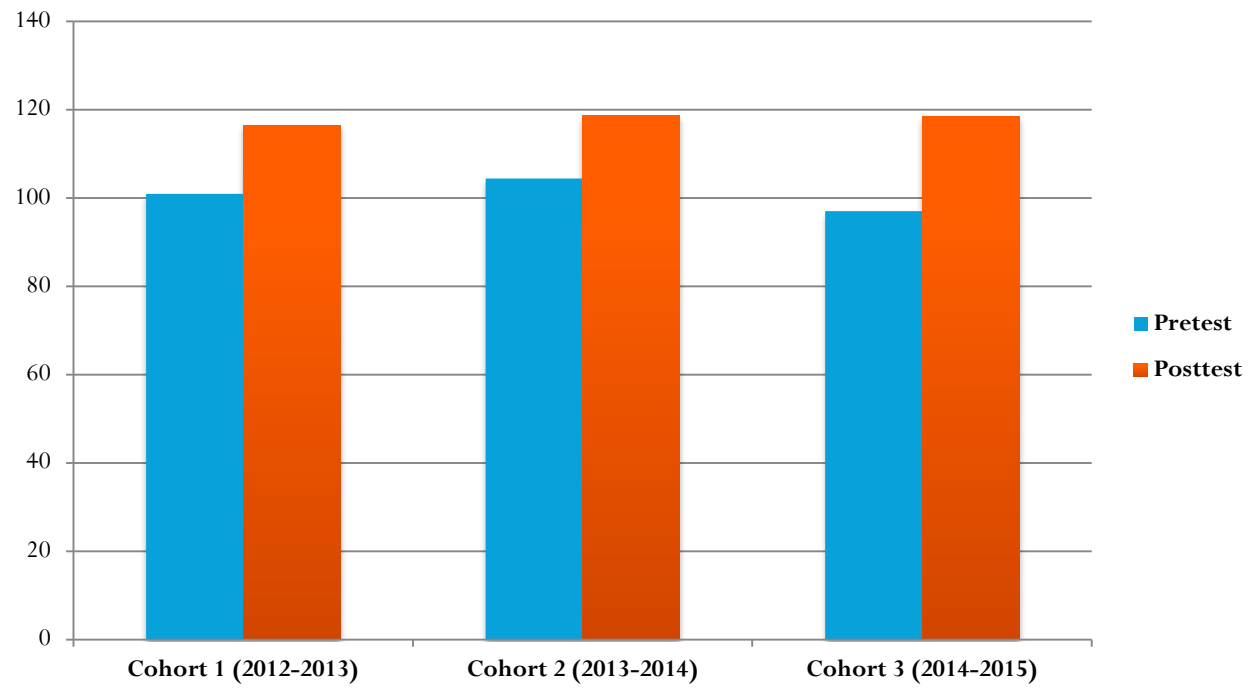

Figure 7. t-statistic and p-values for Knowledge-Based Assessment

Cohort	t-statistic	p-value
1	$t(27)=3.70$	$p<.001$
2	$t(25)=4.25$	$p<.001$
3	$t(13)=3.34$	$p=.006$

Based on these results, it is evident that there was a statistically significant difference between participants' pre and post-test scores for the Critical Thinking Disposition Assessment, indicating that the STArts program had a positive impact on participants' knowledge of critical thinking, as well as their ability and willingness to implement these skills into the arts classroom.

Classroom Observations

Evaluators observed each participant in Cohorts 1, 2 and 3 in the Spring semester before their participation in the summer professional development course and again the following Fall as a post-observation. Evaluators also observed individuals randomly selected across from Cohorts 1, 2 and 3 in the Spring of 2015 to determine whether teachers continued to use critical thinking skills in the years after they had participated in the program. Figure 8 displays the mean pre- and post-observation scores for Cohorts 1, 2 and 3, as well as the mean observation score for the post-post observations in Spring 2015.

Figure 8. Mean Pre-, Post- and Post-Post Observation Scores for Classroom Observations

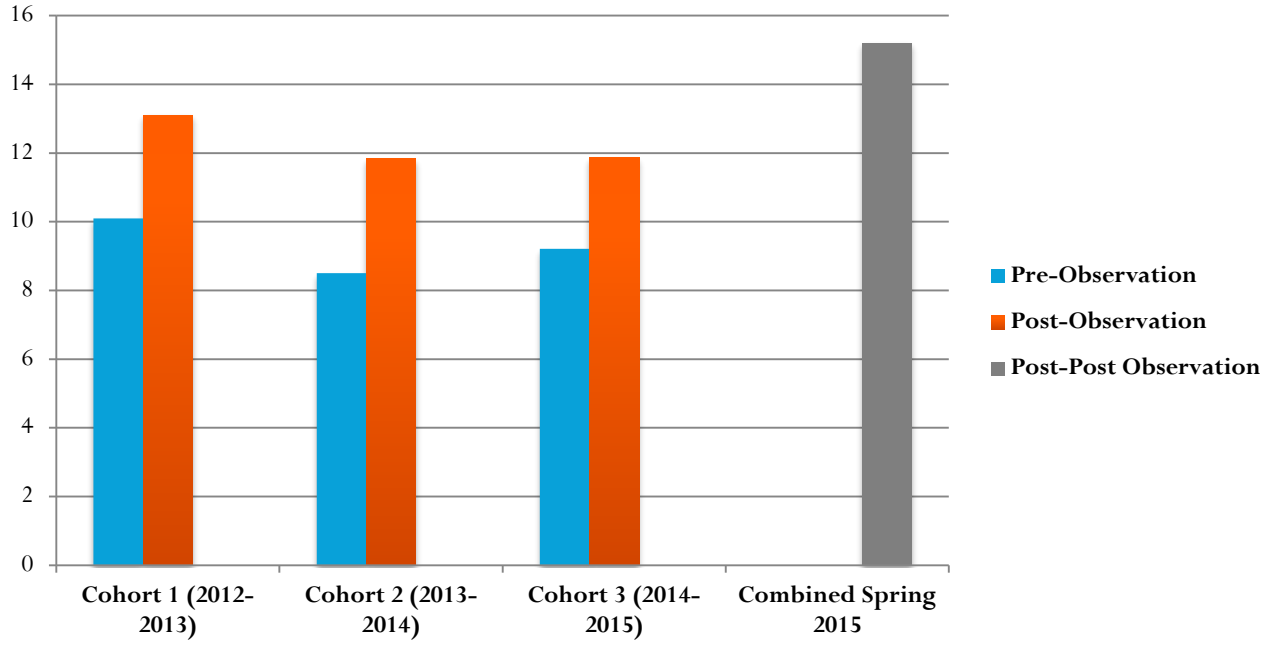

Figure 9 displays the t-statistics and p-values for each cohort's pre- and post-observation scores for classroom observations. Each cohort scored statistically significantly better in the post-observation than it did on the pre-observation. That is, each group improved significantly during the summer treatment phase. What's more, the results for all participants who completed a post-post-observation demonstrate that, not only did participants improve their teaching during programming, but that their learning and improvement continued well past the treatment phase.

Figure 9. t-statistic and p-values for Classroom Observations

Cohort	t-statistic	p-value
1	$t(39)=9.98$	$p<.001$
2	$t(32)=5.85$	$p<.001$
3	$t(28)=3.03$	$P=.005$
Combined	$t(32)=3.82$	$p<.001$

Qualitative Methods

Maxwell (2005) discusses the importance of developing categories in developing and organizing interview themes and putting them into our theoretical framework. Data gathered in focus groups and in interviews with participants were analyzed by STArts staff using the constant comparative method to identify major themes regarding STArts programming's effects participants' use of critical thinking in the classroom and their instructional approaches. This approach allowed the researchers to develop themes, raise questions about the data, and test working hypotheses in order to achieve what Coffey and Atkinson (1996) referred to as "the full analytical potential" of the data.

Four overarching themes emerged from our analyses. First, STArts empowers participants in their schools and classrooms. Next, STArts training equips participants with skills that transcend content areas and grade levels. Third, STArts programming has provided participants with opportunities to grow personally, professionally, and artistically. Finally, and above all else, STArts has transformed the classrooms of participants in ways they had not previously imagined.

STArts as Empowerment

STArts programming created a flexible, open, and creative environment for teachers to interact with peers to think critically and work toward mutual goals. Throughout much of the focus group and interview data, participants pointed to the openness of the STArts learning environment and the engagement it inspired.

> *"This is a room of very flexible thinkers. It's great to be in a room full of flexible thinkers and focusing on an activity centered on critical thinking."*

> *"I think that the environment is part of what the teachers liked about it. In that they don't get treated like professionals very often, and I think the environment was very open to being treated like professionals. We got to have food and we got to dress casually and have socialization, and our ideas mattered, and that's so odd for us in our regular professional development. So I think that's part of what everyone was responding positively to."*

Further, participants found STArts to be more than engaging—it was validation of their instructional methods and contributions in the classroom. In reflecting on STArts' impact on their classrooms, participants frequently cited how STArts empowered them to confidently cover more material in their classes that was qualitatively better/more challenging. What's more, participants see that peers who did not attend trainings notice the richness that critical thinking has added to classroom instruction.

> *"It's been validating to my content and who I am as a teacher to realize how much of this stuff we already do in class and how much of it really seamlessly works into what we do."*

> *" [I've] been able to get farther than I ever have in my classes. I think it's because of these strategies that are now natural. Strategies of finding ways for everyone to answer has really pushed individuals farther."*

> *"Today my principal had observed me, and she said that she couldn't follow along with what my third graders were doing. They were sight reading and she knew that they were doing it well, but she couldn't follow along. And I thought how awesome would it be if the other teachers in the building could come in and be a part of the class, and do what we do."*

STArts is Adaptable

Another central theme that researchers discovered during interviews and focus groups with STArts participants is how transferrable the curriculum is to their classrooms. Participants explain that the critical thinking skills they learned in STArts became central elements to their classroom instruction. For those participants, some noted how seamlessly they were able to weave in critical thinking approaches to their existing instruction strategies. Finally, many participants were at once surprised and empowered by the positive effects the strategies had on their students' learning.

> *"It's making me rethink about how I want my students to think. I'm making those transfers and thinking more from the artistic point of view. I've always wanted to have more art within writing, and I'm able to really formulate some of my ELA lessons into having more of an art focus."*

STArts and Personal Growth

The most prevalent theme researchers found in speaking with participants was the personal growth that STArts inspired in them. Whether personally, professionally, or creatively, the growth was noted by many participants. Many participants first noticed the change working in groups with other participants.

> *"This class has encouraged people to think outside the box. We all don't teach art or music or drama, but I feel encouraged to try something different."*

> *"I think I speak for more than just myself that when we started off, we all thought, 'How am I going to do this? How am I going to have time to do this?' But, as it's unfolded, I totally feel that everything turned around. I don't know when I realized this, but it's actually going to save us time. It's authentic. It sort of came as a surprise."*

> *"[S]omething happened for us as a group while we were working and focused on the task at hand every day. We really got to a point of trusting each other. At that point, we got really effective. Once we got streamlined, we were really able to do better work."*

As we noted in our interviews and focus groups, the "authenticity" of participants' change in perspective has spread to their classrooms and has enriched the learning experiences and critical thinking of their students. Most notably, STArts participants have taken a different approach to instruction, often teaching *with* students rather than teaching *to* them. Specifically, multiple participants spoke about setting higher expectations for students and assisting them in various ways to think critically about solutions. Overall, STArts participants seem to experience personal growth and a change in perspective that enriches their classrooms and students' learning experiences.

> *"I've also realized that I've up the ante I guess with what I expect from my students. I've turned it over, a lot of their ideas more to them, and letting them come up with imagery and solutions to problems. So I guess I've kind of flipped the… well it's not really a flipped classroom, because there's a whole different definition of that, but they're creating the work and I'm the assistant I guess."*

'[The] depth of question [has changed]. Look of surprise on students' face when you don't tell them the answer to the question. Wait time allows them to justify the evidence. Benefit and dividend of having extended amounts of exploratory time to work with one another in a very affirming way with other arts teachers."

STArts and the Transformed Classroom

Finally, a majority of focus group participants and interviewees mentioned how their experience with the STArts program has transformed their classrooms. Following on the heels of the previous section, participants noted that a change in perspective is one element that contributed to their transformed classrooms.

"We've gotten so into test, test, test mentality that it's not fun for the teachers and it's not fun for the students. STArts showed us that school, learning and teaching can be creative and fun."

"The support was amazing and the knowledge that has been given to us has made me realize that I am truly a puzzle piece to their (students') success."

Participants also described specific strategies that they learned in the STArts trainings that have contributed to the richer learning environment that they've experienced in their classrooms. STArts training also equipped participants with a new vocabulary that they share with their students, scaffolding their learning. This scaffolding, according to some participants, becomes infectious in the classroom and students begin to take on the higher-order critical thinking strategies when they work together.

"I focus on the process more than product, and how we get there."

"The use of questioning has helped to change my classroom from a teacher-centered classroom to a student-centered classroom. Everything has become a question and waiting for them to construct the knowledge has shifted the focus to them."

"I think that I'm asking fewer questions, but they're better questions. I think the questions are better in that I'm getting much more of an idea what the kids know and am able to like prod them to give me more, instead of okay you answered my question. Now let's move on. I can get more out of them."

"I tell my students that we're working on critical thinking skills. One thing I've noticed, especially towards the end of last semester, is that when students are helping other students with something, they're not just showing them how to do it, they're talking them through it and asking questions. They're not doing the assignment for the other students, they're asking questions as well."

Conclusions

In close, this report has detailed some of the many benefits that STArts programming has provided to its participants. From both qualitative and quantitative lenses, the STArts program consistently is shown to improve and enrich teachers' instructional practices through critical thinking—both their students and their own.

As researchers, we understand that there is room for improvement. In thinking about the future and new audiences for training on critical thinking, we asked focus group participants and interviewees what suggestions they might make for making STArts programming even more effective. Some participants suggested a different timeframe for the trainings, one that aligns more with their preparation period before the beginning of the new academic year. Others suggested expanding the technology that is used in the training. A central theme we found was that STArts participants wished for ongoing support and professional development that built upon their learning in STArts. Some participants mentioned that meeting with the same group of peers would be beneficial, while others requested scaffolding to balance classroom management and critical thinking strategies.

> *"It would be great if we could get this group back together periodically throughout the year to touch base and see how we are all doing with this information in our classrooms."*

> *"I don't think that the theme necessarily needs to change. Every year I walked away with something different. Continuing this – getting back together to see what else you can learn."*

> *"I would like to see in KCK-style lesson-plan format of what critical thinking would look like in my discipline on paper. Instead of us coming up with them on our own, it would be helpful to see an example on paper in the format that we use on a regular basis."*

> *"Is there some way that I can make all of these critical thinking things work while still managing my classroom and managing behavior problems?"*

However, the majority of respondents thought the most beneficial thing would be if STArts training were made available to all of the teachers and administrators in their schools, which is a strong endorsement of the overall STArts experience:

> *"We want to talk to [the principal] and try to integrate critical thinking skills into our drama and speech in-services so we can start that work now with the teachers who aren't here this week. That's a conversation we'd like to have with our in-services."*

> *"It would be great to invite one of our administrators to come to one of our classes. I think they might have an 'a-ha' moment after seeing some of the work we've done here."*

> *"This has been a very positive experience. I hope we can use the positivity of this class to build momentum to encourage and energize our colleagues."*

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