A Secondary Analysis of School and Student Data from *Learning In and Through the Arts: Transfer and Higher Order Thinking*

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EXECUTIVE SUMMARY/ABSTRACT

This large-scale study examined the effects of particular kinds of arts teaching and learning on the cognitive, social, and personal competencies of elementary and middle school students. It is a re-analysis of data from the landmark, mixed-methods study *Learning In and Through the Arts: Transfer and Higher Order Thinking* (Burton, Horowitz, & Abeles, 1999), a part of *Champions of Change: The Impact of the Arts on Learning* published by the Arts Education Partnership and the President's Committee on the Arts and the Humanities. While *Learning In and Through the Arts* found a relationship between general arts teaching and learning and selected cognitive, social, and personal competencies, it did not identify the particular characteristics and methods of arts instruction that do and do not influence this relationship. The purpose of our secondary analysis study was to address the critical issue of accounting for variable teaching approaches in large-scale studies of learning in the arts. Based on our comprehensive database from the original *Learning In and Through the Arts* study, the secondary analysis identified: (1) the particular methods of instruction within individual arts forms that have the strongest effects; (2) the types and combinations of arts education providers (arts specialists, teaching artists, and classroom teachers) that lead to the strongest effects; (3) the types of instruction (integrated, discrete, or combined) that lead to the strongest effects; and (4) the best measures for looking at the effects of the arts, including recommendations for how measures of creativity can be improved.

We used a series of multi-level regression models to determine the most salient predictors of the development of cognitive, social and personal competencies through the arts. The *Learning In and Through the Arts* database comprises comprehensive data within three levels: child (n=2406), classroom (n=99) and school (n=12). Measured teaching and school characteristics include the amount of time children spent learning in the arts, the means by which the arts where taught (and by whom), teacher preparation and ability to integrate the arts, and the underlying curricular activities and instructional philosophies in each classroom. Outcome data include measures of creativity, self-concept, imagination, risk-taking, expression, and school climate.

The secondary analysis of the data revealed the following:

- *Student Cognitive Outcomes:* The original *Learning In and Through the Arts* data analysis showed significant associations between dimensions of students' creative thinking abilities and arts learning. Our re-analysis reveals distinctions among each arts

discipline. The strongest associations are with elaborative thinking skills, with visual arts and drama having the strongest relationship among the arts disciplines.

- *Student Social and Personal Outcomes:* Students' expressive skills and their capacity for positive risk-taking are the most salient outcomes measured by the Teacher Perception Scale (TPS). There are not large differences in TPS ratings among the arts disciplines, but the performing arts tend to be highest.
- *Classroom and School Outcomes:* Our secondary analysis of the Classroom Teacher Arts Inventory (CTAI) ratings demonstrates that of all of the arts, drama instruction is most associated with arts integrated instruction and combined instructional approaches. The analysis also shows that among those instructional approaches, collaboration between classroom teachers and arts specialist teachers may provide the best results.

These exploratory findings provide useful information for teachers, arts administrators, and policy makers as they plan for particular forms of arts instruction that may impact student cognitive outcomes, student social and personal outcomes, and individual classroom and school outcomes. The specificity of the findings in our re-analysis – in differentiating among the different art forms of dance, music, drama, and visual arts as well as between various providers of arts instruction – move the field toward a more fine-grained understanding of how the ways in which the arts are taught may impact student and school outcomes. This is a necessary direction, for the field needs large-scale, mixed methods studies of student learning in the arts that are able to fully describe *how the arts are taught*, at the micro-level, in order to more precisely answer questions of *what students learn* through various experiences in particular art forms.

PROJECT DESCRIPTION

This large-scale study examined the effects of particular kinds of arts teaching and learning on the cognitive, social, and personal competencies of elementary and middle school students. It is a re-analysis of data from the landmark, mixed-methods study *Learning In and Through the Arts: Transfer and Higher Order Thinking* (Burton, Horowitz, & Abeles, 1999), a part of *Champions of Change: The Impact of the Arts on Learning* published by the Arts Education Partnership and the President's Committee on the Arts and the Humanities. While *Learning In and Through the Arts* found a relationship between general arts teaching and learning and selected cognitive, social, and personal competencies, it did not identify the particular characteristics and methods of arts instruction that do and do not influence this relationship. The purpose of our secondary analysis study was to address the critical issue of accounting for variable teaching approaches in large-scale studies of learning in the arts. Based on our comprehensive database from the original *Learning In and Through the Arts* study, the secondary analysis identified: (1) the particular methods of instruction within individual arts forms that have the strongest effects; (2) the types and combinations of arts education providers (arts specialists, teaching artists, and classroom teachers) that lead to the strongest effects; (3) the types of instruction (integrated, discrete, or combined) that lead to the strongest effects; and (4) the best measures for looking at the effects of the arts, including recommendations for how measures of creativity can be improved.

Need for a Re-Analysis of the *Learning in and Through the Arts* Data

The purpose of the original *Learning In and Through the Arts* study was to: (1) test the stability and generalizability of a model of the effects of arts learning based upon the Learning In and Through the Arts study; (2) identify and define areas of development–supported by arts learning–within cognitive, personal, and social domains; (3) determine if a comprehensive arts partnership can change teacher practice and school climate; and (4) test a systematic, qualitative design to inform future arts education researchers, evaluators, and practitioners. *Learning In and Through the Arts: Transfer and Higher Order Thinking* (Burton, Horowitz, & Abeles, 1999) identified cognitive, social and personal capacities inherent to the arts and also applicable to student development in other academic domains and contexts. Based on tests, surveys, and interviews with 2,406 students and their teachers at 12 elementary and middle schools in Connecticut, New York, South Carolina and Virginia, the study found that students with the strongest arts education outperformed students with less arts education in measures of creativity, expression, risk-taking, imagination, and academic self-concept. The study also found that arts-rich schools, or schools with comprehensive arts curricula, performed

better on a measure of school climate and that students in arts-rich schools performed better on measures of cognitive, social, and personal learning dimensions that were considered potential indicators of transfer from arts learning.

The general findings of *Learning In and Through the Arts* and those of related large-scale studies (for example, Catterall, Chapleau, & Iwanaga, 1999; Catterall, 2009) have been foundational to advocacy efforts that support arts programs in schools. But these studies' lack of specificity about how the arts are taught and what is taught through the arts limits our understanding of what kinds and how much of arts teaching and learning most directly impact these relationships (Horowitz & Webb-Dempsey, 2002). For example, in curricula that integrate art forms with other subjects, it is possible to teach in ways that promote academic, rather than artistic, learning—as in teaching the physics of sound rather than the aesthetics of sound in a music lesson (Winner & Hetland, 2000). Further research is essential to provide a deeper, more nuanced, analysis of the complex relationship between arts learning and the development of other competencies, to lend precision and strength to efforts of those who advocate for the arts in schools and other educational settings. We designed our re-analysis of the *Learning In and Through the Arts* data to produce some of these more specific and nuanced findings.

RELATED STUDIES

Learning In and Through the Arts was heralded at the time of its initial release (Winner, 2002) and is among the most frequently cited large-scale studies of student learning in the arts. It continues to be highly significant because of its blend of rigorous quantitative and qualitative methods and its profound impact on the field of arts education research and advocacy. While the study did not report evidence of transfer from learning in the arts to learning in other disciplines, it did document a relationship between arts learning and general competencies essential for academic success.

The dimensions of cognitive, social, and personal capacities identified as potential mechanisms of transfer in the *Learning in and Through the Arts* study are similar to other models of meta-cognitive or social-emotional learning (Horowitz & Webb-Dempsey, 2002; Winner, et al., 2006). Arts learning and academic learning can be viewed as influencing each other while contributing to overall human development within the situated context of individual schools. The mechanism for this back-and-forth transfer (for want of a better description) may be the cognitive skills, social competencies, and personal dispositions identified in *Learning In and*

Through the Arts, such as expression, risk-taking, imagination, elaboration, originality, empathy, focused perception, task persistence, and other areas of learning (Burton, Horowitz, & Abeles 2000). This network of competencies and dispositions was found to be active and robust within arts learning–indeed, it is inherent to the arts experience–and also at play while learning academic subjects. Rather than arts learning "causing" improvements in specific academic subjects, we can think of these qualities and habits of mind as pathways, or enablers, that help children to construct meaning from experience and environment, and reapply knowledge and skills across domains of learning and understanding.

Other researchers have identified similar variables as outcomes of arts programs. For instance, Catterall (1999) and Harland et al. (2000) found that drama experiences develop a sense of empathy in others. Harland et al.'s findings on creativity, expressive skills, and self-confidence are strikingly similar to those in the original *Learning In and Through the Arts* study. Moreover, Heath (1999) and Baum, Owen, and Oreck (1997) reported that children's experiences in the arts led to gains in risk-taking. Beyond risk-taking, Baum, Owen, and Oreck described self-regulatory behaviors developed through the arts—such as "paying attention," "persevering," and "self-initiating"—that are similar to *Learning In and Through the Arts'* "focused perception," "task persistence," and "ownership of learning," respectively.

Still other studies also have found compelling evidence of the value of arts education more generally. For example, Catterall, Chapleau, and Iwanaga (1999) used the National Education Longitudinal Survey of 1988 (NELS: 88) to track over 25,000 students in American schools for ten years. They reported that students with high-arts involvement outperformed low-arts students on various academic measures, and that high-arts involvement has a greater sustained impact on these measures for students from low-income backgrounds. They also reported significant relationships between achievement in music and achievement in mathematics, and between involvement in theater and gains in reading proficiency, motivation, self-concept, and empathy for others. More recently, Catterall (2009) and Catterall, Dumais, and Hampden-Thompson (2012) found, through longitudinal studies, a continued relationship between experiences in the arts and achievement, values, and civic engagement among young people, including at-risk youth. Finally, in the area of enhanced school climate and classroom teaching-learning environments, Stevenson and Deasy (2005) found that that arts programs helped to make the learning environment in schools more student-centered and more supportive of students' academic, social, and personal development. They also found that when classroom teachers collaborated with teaching artists and arts specialists on arts-integrated instruction, "it had positive effects on teachers' instructional practice and satisfaction in the teaching

profession; strengthened the connection of the school to its surrounding community; and enhanced the role that arts specialists played in the larger school community" (par 1).

However, although there is a broad consensus that the arts have value and given that they are identified as core subjects nationally, policy and resource allocation patterns suggest that the arts still are not "counted" as a fundamental part of the school day. Today's national conversations on education—debates about charter schools, teacher evaluation, tenure, and student testing—have more to do with structure and delivery than students' lived experience in the classroom. And although past studies have examined the relationship of learning in the arts to the development of such capacities as creativity, imagination, and perseverance—outcomes that are essential to students' overall success and wellbeing—these studies have been primarily limited to specific programs and therefore lack generalizability. In short, despite the best efforts of researchers and advocates, there has not been a sufficiently compelling argument to sustain or expand high-quality arts education, and it is difficult to do so in the current environment.

RESEARCH QUESTIONS

Our study, by combining quantitative and qualitative methods through the following research questions, addresses these problems directly by providing the specificity needed to understand the kinds and configurations of arts teaching and learning that correlate with competencies essential for academic and career success. According to the report *Arts Education In Public Elementary and Secondary Schools 1999-2000 and 2009-2010* (Parsad, Spiegelman, & Coopersmith, 2012), little has changed in the past 15 years since *Learning In and Through the Arts* was published—student access to and resources available for arts education have remained stable during this time. Therefore, the findings from our secondary analysis promise to be both reliable and valid. The re-analysis focused on the following research questions:

1. What are the effects of learning in individual art forms on cognitive, social and personal competencies?
2. Which methods of instruction within those arts forms have the strongest effects?
3. Which providers of arts education lead to the strongest effects, and in what combination (arts specialists, teaching artists, and classroom teachers)?
4. Are effects strongest with integrated, discrete, or combined instruction?
5. What are the best measures for looking at the effects of the arts? How can measures of creativity be improved?

RESEARCH DESIGN AND METHODS

We used a series of multi-level regression models to determine the most salient predictors of the development of cognitive, social and personal competencies through the arts. The *Learning In and Through the Arts* database comprises comprehensive data within three levels: child (n=2406), classroom (n=99) and school (n=12). Measured teaching and school characteristics include the amount of time children spent learning in the arts, the means by which the arts where taught (and by whom), teacher preparation and ability to integrate the arts, and the underlying curricular activities and instructional philosophies in each classroom. Outcome data include measures of creativity, self-concept, imagination, risk-taking, expression, and school climate.

The original *Learning In and Through the Arts* analysis included descriptive and multiple regression analyses and a quartile analysis (Burton, Horowitz & Abeles, 2000). In addition to the sustained impact of the original study, the *Learning In and Through the Arts* database is a unique source of additional detailed instructional and outcome data on these 2406 children. The data are ideal for a secondary analysis to determine the specific impact of art forms (music, visual arts, dance, theatre), while considering their relation to the type of instructor (arts specialist, teaching artist, generalist classroom teacher) and particular instructional methods and contexts. The outcome data are also more complex and nuanced than the original publications would suggest, with details on different domains of creativity and self-concept.

Our secondary analysis included details that are eminently useful, both for programming and advocacy. For instance, we were able to examine how an integrated theater program, with a visiting teaching artist and collaborating classroom teacher, affects dimensions of creativity (such as resistance to closure) and self-concept (such as physical or academic self-concept) and how that compares with theater taught by an arts specialist (with analysis of amount of teaching time for both). Many such detailed analyses are possible through the *Learning In and Through the Arts* database.

Samples

Students: There are 2,406 fourth, fifth, seventh, and eighth grade students in the student sample, representing considerable diversity in both arts background and interest and academic opportunities and achievement.

Schools**:** Of the 12 schools, 7 are in New York City, 2 are in New York State, and 1 each in Virginia, Connecticut, and South Carolina. Seven are elementary schools, four are middle schools, and one school spans kindergarten to eighth grades. They represent a mix of arts provision and approaches.

Site Selection

In order to find appropriate research sites, we solicited nominations from a broad cross-section of people involved in arts education, including teachers, administrators, professors, consultants, funders, and program directors. We requested that nominators suggest elementary or middle schools sites that fit within one of five "types" representing different approaches to arts teaching:

1. Schools where the arts are fully integrated with the rest of the curriculum, where the arts are seen as essential to learning in other subject areas, and transfer among subjects is assumed.
2. Schools where the arts are taught through a combination of on-site full time arts specialists and external arts education programs, where both approaches to arts learning are viewed as essential and, in combination and/or separately, are intended to promote transfer of learning.
3. Schools with a strong traditional arts program, taught by specialists with little attempt at curricular integration, where transfer of learning among subjects is not seen as essential.
4. Schools where the arts are taught exclusively by external arts education providers, such as artists-in-residence programs or enrichment programs offered by cultural organizations, where transfer is not necessarily an issue.
5. Schools with a paucity of arts instruction, where the arts are not considered to be essential to learning, where transfer is not necessarily an issue.

Over 150 schools were nominated. However, the schools did not fit easily into our typology model. Although a nominator may have identified a school as being "arts-integrated" or having a "traditional arts program," site visits revealed a more nuanced picture. The degree of arts integration often varied considerably from teacher to teacher within a designated interdisciplinary school, with multiple conceptions of what it meant to teach arts integration.

We concluded that within our nominated schools there was considerable diversity in the type, depth, efficacy, and method of arts provision, both within each arts discipline and across all arts disciplines. We decided, therefore, to track individual children's arts experiences, and consider

each school as a complex combination of our school types. We recast our typology, and identified schools that provided a diverse sample along several dimensions:

- A mix of arts disciplines
- A mix of approaches within disciplines (eg., within music: Orff, Kodály, creative approaches, instrumental music)
- Schools where the arts are taught by arts specialists and schools where the arts are taught by external arts providers
- Schools where the arts are integrated into the general curriculum by classroom teachers, and schools where the arts are taught as discrete subjects by specialists
- Schools that were "arts rich" and schools that were "arts poor" as defined by the quantity of arts programming.

Schools were rated on three seven-point scales, identifying the degree to which they: (1) were arts integrated, (2) were arts-rich, and (3) employed internal arts specialists or external arts providers. Our final site selection was based on obtaining as much diversity as possible along these dimensions. We invited 18 schools to participate in our study. We required schools to allow us to test their entire fourth, fifth, seventh, and eighth grades for 45 minutes. Ultimately, we made arrangements to fully work within 12 schools.

Quantitative Data Sources

Quantitative data sources are divided into two groups: (1) characteristics of teaching and learning, and (2) indicators of potential effects from arts learning. Data were collected in winter and spring 1998.

Characteristics of Teaching and Learning

Students Arts Background (SAB) **–** Students identified each grade that they received in-school arts instruction (including teacher name and arts discipline) and the number of years they participated in out-of-school arts lessons. SAB variables in the *Learning In and Through the Arts* database include:

- Years of In-School Arts – weighted number of years of in-school arts instruction. Students within participating schools did not always have the same level of participation in school arts programs. For instance, external art providers sometimes only work with a portion of a particular grade. Participating students may have transferred in from another school, with a different pattern of arts participation. Therefore, we asked participating children to identify each previous school year that they participated in an

in-school arts program. The data were then weighted according to the assumption that recent instruction might have greater current impact than instruction in the more distant past. The data were normalized on a 100-point scale according to the possible number of years that a child could have had arts instruction. For example, fourth graders could have had up to five years of arts (K-4).

- Arts Lessons – years of private arts lessons. Students listed the number of years they received lessons in each arts discipline. The data were standardized on a 100-point scale according to the number of possible years that they could have had lessons. Scores for the four arts disciplines were averaged to obtain each child's *arts lessons* score.

Arts Specialist Teacher Curriculum Inventory – Each dance, drama, music and visual arts teacher specified the percent of instructional time used for different curriculum objectives, and estimated the percent of students who demonstrated achievement in each area.

Classroom Teacher Arts Inventory (CTAI) – The CTAI assessed non-arts teachers' competence and comfort with teaching and integrating the arts. CTAI variables in the *LIATA* database include: *Degree of Integration, Intentionally Teaches for Transfer, Arts Teaching Self-Concept, Collaboration with External Providers,* and *Collaboration with Arts Specialists*.

Indicators of Potential Effects from Arts Learning

Torrance Test of Creative Thinking (TTCT-figural) – The TTCT measures creative thinking abilities, defined as a constellation of generalized mental abilities commonly presumed to be brought into play in creative achievements (Torrance, Ball, & Safter, 1992). Although this test has been criticized for overly emphasizing fluency and not considering the intrinsic, personal meaning and value of creative thought (Perkins, 1981), it has remained the most widely used yardstick for measuring the impact of arts learning and is normed for different age groups. Scores are provided for 5 creative thinking abilities (*fluency, originality, elaboration, abstractness of titles,* and *resistance to premature closure*), 13 creative strengths (*emotional expressiveness, storytelling articulateness, movement or action, expressiveness of titles, synthesis of incomplete figures, synthesis of lines, unusual visualization, internal visualization, extending or breaking boundaries, humor, richness of imagery, colorfulness of imagery* and *fantasy*), and total scores.

Self-Description Questionnaire (SDQ) – The SDQ is based on a hierarchical model of self-concept developed by Shavelson (Shavelson, Hubner and Stanton, 1976) and provides data on four

areas of non-academic self-concept, three areas of academic self-concept, and one general-self scale. These areas are combined to provide total nonacademic, total academic, and total general-self scores. The SDQ was selected, in part, because the measured areas tend to have low correlations, enabling us to detect differences among effects. That is, certain types of arts teaching might affect certain areas of academic self-concept, while not affecting dimensions of non-academic self-concept (for instance, physical appearance). SDQ variables in the *Learning In and Through the Arts* database include self-concept in: *physical abilities, physical appearance, peer relations, parent relations, reading, mathematics, general school, general self, total non-academic, total academic, and total self.*

Teacher Perception Scale (TPS) – The TPS was developed from a content analysis of *Learning In and Through the Arts* field study data. The TPS assesses four dimensions of learning through the arts. Teachers submitted a TPS for each of their students (n=2406). Reliability estimates were .94 (internal consistency). TPS variables in the *Learning In and Through the Arts* database include *expression, risk-taking, imagination,* and *cooperative learning*.

School-Level Environment Questionnaire (SLEQ) – The SLEQ measures eight factors associated with school climate. The developers report internal consistency reliability estimates of .82 for the overall SLEQ and from .70 to .90 for the eight scales (Rentoul and Fraser, 1983). We obtained internal consistency reliability estimates of .83 for the overall SLEQ from our test sample. SLEQ variables in the *Learning In and Through the Arts* database include *affiliation, student support, professional interest, achievement orientation, formalization, centralization, innovativeness,* and *resource adequacy.*

Qualitative Data Sources

Qualitative data collection primarily consisted of interviews, observations, and examination of children's artwork, performances, and writing. Systematic pre-analysis of interview transcripts led to the development of a codebook for analyzing textual data using qualitative analysis software. Interview transcripts and observational reports were numerically coded, with individual text lines as our unit of measure. There were 22 student outcomes coding categories, such as *focused perception* (cognitive), *compassion/empathy* (social) and *ownership of learning* (personal). Two researchers coded each transcript.

Data Analyses

We used a series of multi-level regression models to determine the most salient predictors (among the characteristics described above) of the development of cognitive, social and

personal competencies through the arts. The models included, as independent variables: (1) provision and quality of arts discipline (research question 1), approaches within arts disciplines (research question 2), proportional delivery among arts providers (research question 3) and integrated vs. discrete instruction (research question 4). We controlled for poverty index.

We examined the distribution of each variable, examined the relationships among variables, and conducted additional factor analyses in order to consider a simplification of our variable structure. Tested models included several potential causal paths, such as examining differences in school climate as a *result* of arts programming, or as a *cause* of arts programming. The data were rich and complete enough for this exploration (the *Learning In and Through the Arts* database is probably the only extant database of its type and size with this level of detail on arts programming and its potential effects). A final analysis detailed the relationships of all tested variables with our model of cognitive, social, and personal outcomes from the arts.

FINDINGS

Cognitive Outcomes

The original *Learning In and Through the Arts* data analysis showed significant associations between dimensions of creative thinking abilities and arts learning. Our re-analysis reveals distinctions among each arts discipline. The strongest associations are with elaborative thinking skills, with visual arts and drama having the strongest relationship among the arts disciplines.

The Relationship of Creative Thinking Abilities and Instruction in Each Arts Discipline

	Fluency	Originality	Elaboration	Resistance to Closure	Creativity Index
Dance	*r = .135*** *n = 1197*	*r = .157*** *n = 1197*	*r = .215*** *n = 1197*	*r = .127*** *n = 1197*	*r = .208*** *n = 1197*
Drama	*r = .147*** *n = 1197*	*r = .162*** *n = 1197*	*r = .262*** *n = 1197*	*r = .183*** *n = 1197*	*r = .276*** *n = 1197*
Music	*r = .114*** *n = 1197*	*r = .170*** *n = 1197*	*r = .238*** *n = 1197*	*r = .137*** *n = 1197*	*r = .253*** *n = 1197*
Visual Arts	*r = .154*** *n = 1197*	*r = .172*** *n = 1197*	*r = .263*** *n = 1197*	*r = .172*** *n = 1197*	*r = .241*** *n = 1197*

**Correlation is significant at the .01 level / *Correlation is significant at the .05 level

We conducted stepwise multiple regression analyses to determine the best predictors of improved student development. Independent variables were derived from programming and instructional characteristics, as measured by the Student Arts Background (SAB), the Classroom Teacher Arts Inventory (CTAI), and the Arts Specialist Teacher Curriculum Inventory.

Elaboration as a Dependent Variable

According to our regression analysis of Elaboration as a dependent variable, the provision of (1) *In-School Arts Instruction*, (2) *Collaboration Between Classroom Teachers and Teaching Artists*, (3) *High Classroom Teacher Arts Teaching Self-Concept*, (4) *Out-of-School Arts Lessons*, (5) *Classroom Teacher's Use of Arts Integration*, and (6) *Collaboration Between Classroom Teachers and Arts Specialists* predicts acquisition of Elaborative Thinking Skills ($r = .443$; $F = 47.556$; $p < .001$).

This analysis suggests that combined approaches to delivering arts education (in and out of school, integrated and discrete, with varied and collaborative arts providers) will support the strongest effects on students' development of elaborative thinking, as well as other creative thinking abilities.

Originality as a Dependent Variable

According to our regression analysis of Originality as a dependent variable, the provision of (1) *In-School Arts Instruction* and (2) *Out-of- School Arts Lessons* predicts acquisition of Originality ($r = .210$; $F = 26.918$; $p < .001$).

The analysis shows that multiple settings for student learning in the arts, including taking classes with an arts specialist teacher and taking private lessons or studying at a community arts center, support enhanced original thinking skills.

Resistance to Closure as a Dependent Variable

According to our regression analysis of Resistance to Closure as a dependent variable, the provision of (1) *High Classroom Teacher Arts Teaching Self-Concept*, (2) *Classroom Teacher Intentionally Teaching for Transfer*, (3) *Out-of-School Arts Lessons*, and (4) *Collaboration Between Classroom Teachers and Arts Specialists* predicts students' capacity for Resistance to Closure ($r = .239$; $F = 17.428$; $p < .001$).

Again, combined multiple approaches to arts education are most likely to support children's development of the capacity for "resistance to closure," or staying on task for longer periods of time to facilitate the development of multiple or original solutions to problems.

Social and Personal Outcomes

Students' expressive skills and their capacity for positive risk-taking are the most salient outcomes measured by the Teacher Perception Scale (TPS). There are not large differences in TPS ratings among the arts disciplines, but the performing arts tend to be highest.

The Relationship of Teacher Perception Scale (TPS) Ratings and Instruction in Each Arts Discipline

	Expression	Risk-Taking	Imagination	Cooperative Learning
Dance	*r = .215*** *n = 1040*	*r = .215*** *n = 1040*	*r = .172*** *n = 1040*	*r = .096*** *n = 1040*
Drama	*r = .202*** *n = 1040*	*r = .223*** *n = 1040*	*r = .155*** *n = 1040*	*r = .075** *n = 1040*
Music	*r = .183*** *n = 1040*	*r = .221*** *n = 1040*	*r = .194*** *n = 1040*	*r = .155*** *n = 1040*
Visual Arts	*r = .168*** *n = 1040*	*r = .167*** *n = 1040*	*r = .149*** *n = 1040*	*r = .096*** *n = 1040*

**Correlation is significant at the .01 level / *Correlation is significant at the .05 level

Expression as a Dependent Variable

According to our regression analysis of Expression as a dependent variable, the provision of (1) *In-School Arts Instruction*, (2) *Out-of-School Arts Lessons*, (3) *Collaboration Between Classroom Teachers and Teaching Artists*, (4) *Classroom Teacher's Use of Arts Integration*, and (5) *Classroom Teacher Intentionally Teaching for Transfer* predicts acquisition of students' Expressive Skills (r = .313; F = 21.977; p < .001).

This analysis demonstrates that combined instructional support (arts lessons in and out of school, collaboration between different arts providers), along with a teacher's explicit integration of arts content with that of other academic disciplines, and actively connecting learning in the arts with learning in other subject areas, can support students' expressive skills.

Further analysis can explore different dimensions of expression – including verbal, non-verbal or physical, and written expression – and different dimensions of expression within an artistic medium to better identify predictors of expressive abilities.

Risk-Taking as a Dependent Variable

According to our regression analysis of Risk-Taking as a dependent variable, the provision of (1) In-School Arts Instruction, (2) Out-of-School Arts Lessons (3) Classroom Teacher's Use of Arts Integration, and (4) Classroom Teacher Intentionally Teaching for Transfer predicts students' Risk-Taking (r = .329; F = 30.774; p < .001).

Imagination as a Dependent Variable

According to our regression analysis of Imagination as a dependent variable, the provision of (1) In-School Arts Instruction, (2) Out-of-School Arts Lessons, (3) Classroom Teacher Intentionally Teaching for Transfer, and (4) Classroom Teacher's Use of Arts Integration predicts students' Imaginative Skills (r = .443; F = 47.556; p < .001).

These two final regression analyses of Teacher Perception Scale ratings and instruction in each arts discipline – with Risk-Taking and Imagination as dependent variables – demonstrate that both combined instructional support (arts lessons in and out of school), along with a teacher explicitly integrating arts content with that of other academic disciplines as well as actively connecting learning in the arts with learning in other subjects, can support students' risk-taking and imaginative skills.

<u>Students' Self-Concept</u>

The original *Learning In and Through the Arts* analysis found significant associations between students' arts education experiences and their perceptions of themselves as learners according to the following dimensions: Reading Self-Concept, Math Self-Concept, and General School Self-Concept. We did not find significant associations for non-academic dimensions of self-concept, such as self-perceptions of physical ability or physical appearance.

Comparing self-concept scores with experience in each arts discipline individually, as we have done in our re-analysis, provides new insight on these relationships. There are small but significant negative correlations between music and visual arts students and physical ability and student-parent relations self-concept. But there are positive correlations between all non-

academic self-concept dimensions and dance/drama students. Perhaps these young performers feel better about how they look and benefit from the social aspects of these art forms.

The Relationship of Non-Academic Self-Concept and Instruction in Each Arts Discipline

	Physical Abilities S-C	Physical Appearance S-C	Peer Relations S-C	Parent Relations S-C	Total Non-Academic S-C
Dance	*r = .081*** *n = 1627*	*r = .070*** *n = 1627*	*r = .066*** *n = 1627*	*r = .173*** *n = 1627*	*r = .130*** *n = 1627*
Drama	*r = .094*** *n = 1627*	*r = .087*** *n = 1627*	*r = .061** *n = 1627*	*r = .142*** *n = 1627*	*r = .127*** *n = 1627*
Music	*r = -.008* *n = 1627*	*r = -.085*** *n = 1627*	*r = -.012* *n = 1627*	*r = -.034* *n = 1627*	*r = -.048* *n = 1627*
Visual Arts	*r = -.041* *n = 1627*	*r = -105*** *n = 1627*	*r = -.035* *n = 1627*	*r = -.085*** *n = 1627*	*r = -.188*** *n = 1627*

**Correlation is significant at the .01 level / *Correlation is significant at the .05 level

Our secondary analysis of academic self-concept data shows that most of the positive effects we reported in the original *Learning In and Through the Arts* study is due to dance and drama, not all four arts disciplines. The positive effects around academic self-concept may also have to do with the schools we worked in. Very few had all four arts disciplines, and those that did were exceptional with students that scored higher in most of our analyses.

The Relationship of Academic Self-Concept and Instruction in Each Arts Discipline

	Reading S-C	Math S-C	General School S-C	Total Academic S-C
Dance	*r = .259*** *n = 1627*	*r = .145*** *n = 1627*	*r = .222*** *n = 1627*	*r = .247*** *n = 1627*
Drama	*r = .248*** *n = 1627*	*r = .136*** *n = 1627*	*r = .221*** *n = 1627*	*r = .241*** *n = 1627*
Music	*r = -.066*** *n = 1627*	*r = .039* *n = 1627*	*r = -.010* *n = 1627*	*r = -.013* *n = 1627*
Visual Arts	*r = -.156*** *n = 1627*	*r = -.032* *n = 1627*	*r = -.092*** *n = 1627*	*r = -.110*** *n = 1627*

**Correlation is significant at the .01 level / *Correlation is significant at the .05 level

As before, combined approaches to arts education, with collaborating arts instructional providers, are the best predictors of higher self-concept scores.

Reading Self-Concept as a Dependent Variable

According to our regression analysis of Reading Self-Concept as a dependent variable, the provision of (1) *Out-of-School Arts Lessons*, (2) *Classroom Teacher's Use of Arts Integration*, (3) *High Classroom Teacher Arts Teaching Self-Concept*, and (4) *Collaboration Between Classroom Teachers and Arts Specialists* predicts higher students' Reading Self-Concept (r = .256; F = 19.413; p < .001).

General School Self-Concept as a Dependent Variable

According to our regression analysis of General School Self-Concept as a dependent variable, the provision of (1) *Classroom Teacher's Use of Arts Integration*, (2) *Out-of-School Arts Lessons*, and (3) *High Classroom Teacher Arts Teaching Self-Concept* predicts higher students' General School Self-Concept (r = .234; F = 21.414; p < .001).

These two regression analyses of students' academic self-concept ratings and instruction in each arts discipline – with Reading Self-Concept and General School Self-Concept as dependent variables – show that arts learning experiences in and out of school, along with a classroom teacher's practice of explicitly integrating arts content with that of other academic disciplines and possessing a high degree of confidence in teaching the arts, can support students' reading and general school academic self-concept.

Classroom and School Outcomes

Our secondary analysis of the Classroom Teacher Arts Inventory (CTAI) ratings demonstrates that of all of the arts, drama instruction is most associated with arts integrated instruction and combined instructional approaches. The analysis also shows that among those instructional approaches, collaboration between classroom teachers and arts specialist teachers may provide the best results.

The Relationship of Classroom Teacher Arts Inventory (CTAI) Ratings and Instruction in Each Arts Discipline

	Degree of Arts Integration	Intentionally Teaches for Transfer	Arts Teaching Self-Concept	Collaboration with External Arts Providers	Collabora-tion with Arts Specialists
Dance	*r = .169*** *n = 1574*	*r = .084*** *n = 1574*	*r = .140*** *n = 1574*	*r = .063** *n = 1574*	*r = .229*** *n = 1574*
Drama	*r = .603*** *n = 1574*	*r = .529*** *n = 1574*	*r = .594*** *n = 1574*	*r = .476*** *n = 1574*	*r = .554*** *n = 1574*
Music	*r = .218*** *n = 1574*	*r = .175*** *n = 1574*	*r = .188*** *n = 1574*	*r = .173*** *n = 1574*	*r = .311*** *n = 1574*
Visual Arts	*r = .167*** *n = 1574*	*r = .219*** *n = 1574*	*r = .193*** *n = 1574*	*r = .039* *n = 1574*	*r = .246*** *n = 1574*

**Correlation is significant at the .01 level / *Correlation is significant at the .05 level

School Climate (SLEQ)

The school climate ratings provide an interesting contrast. There are positive correlations between arts education experiences (in each discipline) and Student Support (positive relationships between teachers and students) and teacher Affiliation (or positive identification with school). However, there are significant negative correlations with Achievement Orientation, Formalization and Centralization. These data suggest a conflict between a centralized and mandated top-down approach to curriculum, and the provision of comprehensive multi-disciplinary arts instruction. In addition, schools that most value Achievement Orientation, or put a premium on test score performance are likely to have less arts, and particularly the visual arts. On the other hand, schools with multiple arts are more likely to have better relationships between teachers and students, and to have teachers who are professionally fulfilled working at their school.

The Relationship of School Climate (SLEQ) and Instruction in Each Arts Discipline

	Affiliation	Student Support	Achievement Orientation	Formalization	Central-ization
Dance	*r = .152*** *n = 1574*	*r = .105*** *n = 1574*	*r = -.158** *n = 1574*	*r = -.249*** *n = 1574*	*r = -.042* *n = 1574*
Drama	*r = .376*** *n = 1574*	*r = .487*** *n = 1574*	*r = -.191*** *n = 1574*	*r = -.430*** *n = 1574*	*r = -.395*** *n = 1574*
Music	*r = .272*** *n = 1574*	*r = .229*** *n = 1574*	*r = -.132*** *n = 1574*	*r = -.569*** *n = 1574*	*r = -.157*** *n = 1574*
Visual Arts	*r = .225*** *n = 1574*	*r = .219*** *n = 1574*	*r = -.486* *n = 1574*	*r = -.376*** *n = 1574*	*r = -.118*** *n = 1574*

**Correlation is significant at the .01 level / *Correlation is significant at the .05 level

CONCLUSIONS

Significance and Limitations of the Findings (Implications for Policy and Advocacy)

The exploratory findings from our secondary analysis provide useful information for teachers, arts administrators, and policy makers as they plan for particular forms of arts instruction that may impact student cognitive outcomes, student social and personal outcomes, and individual classroom and school outcomes. These findings suggest a relationship between arts education experiences and dimensions of creativity (particularly elaboration), academic self-concept, expression and risk-taking. Differences among arts disciplines provide additional understanding for programming, policy and advocacy.

Drama education was associated with higher academic self-concept and school climate ratings. This should be further explored. While this may be due to the inherent qualities of drama instruction, it should be noted that few of our original sites had in-school drama programs. Those that did tended to also have all four arts disciplines, along with at least some degree of arts integration and visiting teaching artists. Therefore, it is possible that the drama effects also reflect a combined impact from multiple sources.

The findings demonstrate that combined resources are most likely to reveal stronger effects from arts experiences. Coordinated instruction among arts specialist teachers, classroom

teachers, and visiting teaching artists are most likely to be associated with higher creativity, self-concept, expression and risk-taking scores. Conversely, schools that value a highly centralized, mandated curriculum along with a strongly overt emphasis on standardized test score performance may see lower associations between these outcomes and arts learning experiences. Obviously, more research is needed to fully explore these implications and we must caution against an assumption that these findings will apply to other settings, although we were careful to select a diverse and representative set of sites.

Utility and Alignment of the Measurements (Implications for Future Research)

The increased specificity of the findings in our re-analysis – in differentiating among the different art forms of dance, music, drama, and visual arts as well as between various providers of arts instruction – move the field toward a more fine-grained understanding of how the ways in which the arts are taught may impact student and school outcomes. This is a necessary direction, for the field needs large-scale, mixed methods studies of student learning in the arts that are able to fully describe *how the arts are taught*, at the micro-level, in order to more precisely answer questions of *what students learn* through various experiences in particular art forms.

However more work in this area is still needed. How should new transfer studies be designed, taking into account advances in social science methods and current conceptions of causality? What kinds of measurements can more accurately assess dimensions of creativity, self-concept, expression and risk-taking? What are the limitations of measurement and where can qualitative or mixed-methods more accurately describe the phenomenon of learning in and through the arts?

We see the completed study as a prelude to a more extensive study, with revised instrumentation, on the impact of the arts.

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