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Arts-Based Experiences as Preparation for Future Learning¹

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Abstract

This article explores the learning that takes place through the inner and interpersonal dialogues students engage in as part of the creative and expressive processes common to all arts disciplines. A writing-infused visual and performing arts curriculum is described, in which students carry out brief writing assignments as a prelude to classroom discussions and critiques of artwork. Two types of data—interviews with teachers and student written work—are used to show the effects of classroom dialogues. A quasi-experimental study, in which pre- and post-essays written by urban high school students are compared, supports the conclusion that such dialogues enhanced students' ability to think through problems and express ideas clearly.

In recent years there has been a resurgence of interest in the arts as academic disciplines, accompanied by a growing interest in artistic experience as a form of cognition. Consideration of the arts as a cognitive domain carries with it important implications (Deasy, 2002); this makes the arts a potentially formidable ally in increasing student achievement (Bransford *et al.*, 2004). However, linking the arts to overall student achievement carries with it the risk that schools could treat the arts merely as tools for increasing student learning in other disciplines.

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In *Studio Thinking: The Real Benefits of Visual Arts Education* (2007), Hetland, Winner, Veenema, and Sheridan pointed out: “The most glaring oversight in the studies conducted thus far is that researchers have failed to document the kinds of thinking that are developed through study of the arts” (p. 4). In an attempt to fill this gap, they described how teachers in two high schools with intensive, high-quality arts programs strove to instill eight “Studio Habits of Mind” (or dispositions). Based on extensive research carried out at these impressive but highly specialized schools, their findings were intriguing. Yet the applicability of these findings to typical public school settings—especially to diverse urban secondary schools--remained unclear.

The qualitative portion of the study summarized in this article used interviews to explore whether visual and performing arts teachers at large urban high schools sought to instill dispositions similar to those described by Hetland *et al.* Four of the dispositions--Envision, Express, Observe, and Reflect--were spontaneously identified by the teachers who were interviewed. These teachers emphasized the pivotal role that classroom dialogue played in building communication skills among at-risk youth. The following observations were typical:

Every year I have an incredible number of kids who say, “I wish I had known about this class before. I now have so much confidence about myself as a speaker and a thinker!” So I see that the work I do with the students in art carries over to every discipline because the core of art is communication.

They are just going to be much better prepared to go on a job interview, to give a speech in front of people, to give a presentation.

The quantitative portion of the study investigated whether the inner and interpersonal dialogues that took place in arts classes, as part of the creative and expressive processes common to all arts disciplines (Catterall, 2005), enhanced students’ cognitive skills. This aspect of the study tested whether students enrolled in urban visual and performing arts classes were, in fact, becoming more effective communicators. Students shared their perceptions through in-class

essays written in fall and spring. University English instructors scored the 782 essays.

The teachers who volunteered to take part in the study were recruited from a professional development program in California, which had been set up to help arts teachers develop the standards-based classes required by a new University of California (UC) admission requirement in the visual and performing arts. UC admissions officers had stipulated that for arts courses to be used for UC admission, they must include written work as a means of evaluating student understanding of key concepts in that art discipline. Therefore these teachers had, for some time, been asking students to carry out brief writing assignments as a prelude to classroom discussions and critiques of artwork. Students often returned later to their journal jottings, to flesh out ideas.

The Policy Impact of Debates Regarding Cognition

Transfer is that type of understanding that allows learners to explain the knowledge they are acquiring and make flexible use of it (Campione, Shapiro, & Brown, 1995). Although transfer is an elemental aim of teaching, achieving transfer has proved to be a formidable problem (McKeough, Lupart, & Marini, 1995). For decades researchers were more successful in showing how people failed to achieve the transfer of learning than in producing it (Campione et al., 1995). In recent years, however, evidence has been accumulating that drama (Moore & Caldwell, 1993; Podlozny, 2000), music (Kariuki & Honeycutt, 1998), and the visual arts (Wilhelm, 1995) can help to boost academic performance.

Debate continues among scholars concerning the strength of the evidence in favor of transfer. However, the greatest policy barrier to integrating arts—or other discipline-specific instruction--across content areas comes from another source: The view of cognition that underpins current school policies is grounded in a discipline-specific approach to learning.

Global vs. Domain Specific Views of Cognition

Jean Piaget offered a comprehensive formulation of the process of cognitive growth (Piaget, 1972, 1967), which described the child's changing view of the world as the child interacted with the environment from early childhood through adolescence. Piaget's global view of development, which was dominant from the 1960s through the 1980s, focused on cognitive development as a whole, rather than on a child's performance in isolated areas of the curriculum. This outlook was eventually challenged by Chomsky (1988) and others, who argued that children learn specific bodies of knowledge, both on their own and in schools.

That children acquire language rapidly and easily, with relatively little environmental support, had suggested to Chomsky that language is a modular cognitive system. Since school districts are held accountable for students' acquisition of specific bodies of knowledge, public schools were strongly influenced by the domain-specific view of cognitive development. During the 1970s and 1980s, researchers searched for the principal structures that characterized various disciplines. State curriculum standards increasingly emphasized acquisition of domain-specific knowledge instead of global cognitive development. Given that there is only so much time in the school day, classroom teachers were forced to make choices.

Fully addressing the language arts content standards often meant that, in elementary schools, other disciplines (such as the visual and performing arts) were given little classroom time. The result was a narrowing of the curriculum. Teaching a subject like art was assumed to take instructional time away from – and thus limit learning in – other content areas. If learning in one situation were shown to “carry over” to another context (Perkins & Salomon, 1993), the curriculum might be broadened without undercutting the acquisition of basic skills. This would allow the arts, along with social studies and science, to play an expanded role in K-5 education.

The Contribution of Neuroscience

Until the last few years, most psychologists considered mental representations as akin to conceptual units of the mind (Szucs & Goswami, 2007). Most cognitive theories assumed the existence of symbolic representations, which were discrete in form. Neuroscience research has now shown that human information processing relies on extended interconnected neural networks in the brain. All mental activity relies on distributed mental representations that are embodied in neural networks. However, the activity of neural networks cannot be divided into discrete conceptual units.

As Bruer (1997, 1998, 2002) has pointed out, current neuroscience research has little to contribute to classroom practice. However, although practical classroom applications remain a long way off, cognitive neuroscience can make a current contribution by serving as a guide to psychological theorizing. By revealing that human mental activity is less compartmentalized than some theorists have claimed, neuroscience can encourage development of cognitive theories that more closely correspond to what is now known about how the brain functions.

Learning to Think like an Artist

As Bransford and Schwartz (1999) observed: “A belief in transfer lies at the heart of our educational system. Most educators want learning activities to have positive effects that extend beyond the exact conditions of learning” (p. 61). Educators remain hopeful that students will show evidence of transfer from one course to another, from one school year to another, from school to the workplace. Still, as Detterman (1993) pointed out, most research studies that have focused on this phenomenon have failed to find transfer. Bransford and Schwartz argue that this may be because most studies of transfer have tested the ability of subjects to directly apply previous learning to a new setting or problem. They argue that it may be more fruitful to take a broader view of transfer, one that would include “preparation for future learning” (PFL).

This broader view of transfer fits nicely with Broudy’s (1977) argument that we must go beyond looking at “knowing that” (replicative knowledge) and “knowing how” (applicative

knowledge), to consider the importance of “knowing with” (the way that individuals perceive, interpret, and judge situations based on past experiences). When “knowing with”, the educated person “thinks, perceives and judges with everything he has studied in school, even though he cannot recall these learnings on demand” (p. 12). “Knowing with” exerts a great, if subtle, influence because what we have experienced in the past influences what we notice about subsequent events, even though the context of the prior learning may no longer be recalled.

Broudy (1977) contended that the experience of viewing art or reading poetry can have a strong impact on “knowing with”—if that experience is subjected to serious study and analysis. Similarly, Bransford and Schwartz (1999) point out that some music, drama, and athletic teachers (coaches) are able to help students learn about themselves, even as the students struggle to perform in subject-specific arenas. This is not true of all teachers; others in the same fields focus solely on performance. But those teachers who do take advantage of opportunities to stimulate “mediated reflections” about possibilities for personal development can help prepare their students for learning later in life.

Interviewing Teachers about their Classroom Experiences

There was enough similarity between the concept of “preparation for future learning” and the dispositions described by Hetland *et al.* to suggest a possible explanation for the transfer effects found by researchers who looked at the impact of arts instruction on achievement in other academic subjects and on standardized tests such as the SAT (Murfee, 1995; Fiske, 1999). The natural next step seemed to be to talk to teachers. The intent was not to assemble a representative sample, but to see if well-respected visual and performing arts teachers who taught in urban schools would spontaneously mention efforts to foster specific dispositions in students.

In choosing teachers to be interviewed, an important consideration was identifying teachers who had a reputation for inspiring their students to achieve at a high level, not just in the arts discipline but also in other areas of the curriculum. In addition, teachers were chosen who

tended to structure class time in a manner similar to the visual arts teachers described by Hetland *et al.* (using variations of Demonstration-Lecture, Students-at-Work, and Critique). For this reason, music teachers were not interviewed; performance pressures (preparing to play at football games and other sports events, and/or to perform at multiple concerts) dictated that band and choral music teachers structure classroom time differently.

In an effort to balance the visual and performing arts within the sample, four teachers were chosen: a drama teacher, a dance teacher, and two visual art teachers. All worked in California schools that served low-income neighborhoods with large numbers of English language learners. The teachers were asked to discuss the benefits students derived from arts classes. Their observations have been organized below, using the four dispositions identified by Hetland *et al.* (2007) that were also mentioned by all of the interviewees: Envision, Express, Observe, Reflect. Since the views of the two visual art teachers were similar, only one visual art teacher is quoted in regard to each disposition.

Envision. Generation of a mental image of one's finished work was a topic touched on by all of the visual and performing arts teachers. However, generation of these mental images was a result of different thought processes in each discipline. In visual art, the student's task was to visualize the finished work. In theater and dance classes, the students not only had to envision their own role in the performance, but they also had to "get inside the skin" of the individual they were expected to portray and bring that role to life in a manner that "worked" within the larger structure of the scene or the dance.

Students have to [inwardly] perceive what they are going to draw because seeing something and making it happen on paper are a little bit different. So they have to perceive what they are going to do. [Visual Art]

In theater you have to think on many different levels. What does my character want? What am I going for? On a basic reading they not only have to decode the

script but they have to understand the script. What am I saying? [Theater]

Let me give an example. At one point they were supposed to drop to their knees and act like they were hot and tired from working in the field. They had to think: “Okay, if somebody was bent over all day, getting rice out of a field and straining it, what would they be doing?” They had to actually think: “What would I do? Okay, my back would hurt, the sun is hot, and I would be wiping my brow.” And they each had to be introspective about that and look into themselves. [Dance]

Express. Both the visual art and the performing arts teachers emphasized the extent to which artistic expression required more than just technical skill. Yet, the focus differed. For the visual art teachers, the emphasis was on conveying a personal intention. The performing arts teachers focused on the way that individual choices were influenced by the need to connect one’s performance to that of others. The theater teacher commented on the need for students to tailor their performance to a specific script. The dance teacher emphasized the learning that took place as a result of sharing the performance with a community of other dancers.

The arts are one way where you can express your personality. If they were to take the art classes away, some students whose gifts are in the arts would be very lost. Art opens up your mind and it gives you a new outlook on life. [Visual Arts]

There are so many levels on which the students are making critical choices to better their art. They need to look at it structurally. How do I structure the performance in the most effective way for the particular script I am using? [Theater]

What was really great for my kids was the performance at the end, actually sharing what they learned with the community of other dancers, also watching how the other dancers created different dance styles. [Dance]

Observe. Careful observation was important to each art form, enabling students to notice things that would otherwise have been invisible and therefore not available for consideration. One of the visual art teachers spoke of how differences in the ways students perceived visual phenomena provided an entry point for talking about interpersonal differences. The theater teacher saw observation as a skill that students learned through engaging in dialogue with other

students and critiquing each other's work. The dance teacher described the importance of observation skills, not only for dancers but as preparation for learning in other aspects of life.

When we were doing things with symmetry and asymmetry, we would notice that some people perceived balance and unbalance differently. We would talk about those things. How did this person look at this? Why did this person come up with this? So we talked quite a bit about how there were different ways of looking at things. [Visual Art]

[Observation] has had a great effect on the students' critical abilities because, when they are working with someone, they been essentially critiquing each other's work. So what happens is that students internalize that. In the next piece they use what they saw. [Theater]

Observation skills are what we develop the most in dance. So modeling is extremely important in dance. That is one thing I am trying to get the kids to do all the time, hone their observation skills because, in life, if you can read what you need to do and figure it out without asking questions, you are going to go much further in life. [Dance]

Reflect. Hetland *et al.* described the process of reflection as taking two forms. In the first, students were asked to think about and explain their process, decisions, and intentions. In the second, students were asked to judge their own work and that of others. When talking about reflection, the visual art teachers in our study made similar distinctions regarding reflection. However, the performing arts teachers saw reflection as more of an organic, on-going process, which should not be separated from embodied performance.

We would have one-on-one critiques, working individually with a student to have them analyze their work. For example, when they said 'I don't like it', we would ask them to be more specific, 'What don't you like?' [Visual Art]

Acting is an act of reflection because, every time you perform, you want to do it better. There is constantly: What can I do to better this? What's not working? How can we re-fashion this? [Theater]

Anytime you do any kind of criticism, you've got analysis. We have mirrors in the classroom, so the analysis begins right there. As soon as they stop looking at the instructor for modeling, they immediately look to the mirror, to analyze what they are doing and make corrections. [Dance]

“Knowing With” as Preparation for Future Learning

The arts help students to connect with, and make meaning from, the qualitative aspects of the environment in which they are immersed: the sights, sounds, tastes and smells that our sensory system continually records. As Suzanne Langer (1957) pointed out, ‘seeing’ is not a passive process, by which meaningless impressions are stored up for the use of an organizing mind; instead ‘seeing’ is itself a process of formulation. Our understanding of the visible world begins in the eyes. Effective arts teachers engage students in activities that allow them to experience day-to-day sensory perceptions in a deeper and more meaningful way; students find that color, sound, gesture, and tone of voice take on new significance.

“Knowing how” and “knowing that” (Broudy, 1977) played an important role in all of the visual and performing arts classes. There were paintbrushes to be cared for and marks to be hit onstage. As the theater teacher pointed out: “Memory techniques were taught. Concentration techniques were taught. Focus, relaxation.” Yet, it was their students’ enhanced ability to perceive, interpret, and judge situations based on what they had learned in their arts classes to which the teachers pointed with most pride:

Kids have to be incredibly disciplined in dance and that carries over to all their classes. They become much more focused. In dance, if you blink, you miss something. [Dance]

Students who are involved in our programs tend to go into their classes with more of a sense of: “I can do that. I can solve that problem”. If they are doing a project, the students are aware of what it takes to schedule time to get something finished. [Theater]

Many of my students struggle with reading and writing. This type of activity freed them so that they could feel more engaged in a project. They were able to realize: “I can do this.” That made them feel successful. It not only helped their confidence but a number of them have continued doing art. [Visual Art]

By bringing together the emotional, intellectual and practical dimensions of learning, the arts engage students in a unique way. This may make visual and performing arts classes

especially favorable venues not only for fostering the dispositions discussed above, but also for implementation of strategies aimed at getting struggling students to re-engage with the challenges they encounter at school. The next section describes a quasi-experimental study that looked at changes in student thinking and writing that were tied to discussions in arts classes.

Testing the Impact of Classroom Dialogue on Student Thinking

The teachers whose voices were heard above were also participants in a professional development project, which served high schools that had been designated “low-performing” by the state. Teachers participating in this project had adopted a writing-to-learn approach to encouraging student reflection. Before an oral critique or a discussion began, students were given a prompt and a few moments to jot down their responses. After the discussion, they were often asked to flesh out their thoughts, building on insights that had been shared by others. This use of “quick-writes” in arts classes provided a window on the development of student thinking.

To experimentally test whether there had been a change in student thinking skills over the course of a school year, a group of arts teachers who had adopted a writing-to-learn approach was chosen and matched to a control group of teachers who taught other elective classes. In September, and again in May, students of the selected teachers were asked to write an essay to a prompt taken from a previous California High School Exit Exam (CAHSEE). The student essays were blind-scored, using the 4-point CAHSEE rubric, by English instructors who routinely read the essays used to place University of California freshmen in appropriate composition classes.

Treatment Group Performance Analysis

A total of 782 student pre and post essays were collected from 10 control teachers (n=319 essays) and 9 treatment teachers (n=463 essays). Essays were stripped of all identifying

information, including their pre or post designation. To assess interrater reliability, a stratified random sample of 92 (11.8%) of the essays, 46 pre and 46 post, were drawn from this dataset, mixed together, and scored by all four of the UCI writing composition instructors who were involved in scoring the essays. These results were used to further calibrate the different raters before the remaining essays were distributed and scored.

A summary of pre and post-essay scores for students of treatment teachers is given in Table 1. A comparison of the distributions for pre and post-essay scores reveals a general upward trend from pre-essay scores to post-essay scores. Well over half (59.8%) of all students of treatment teachers scored a ‘1’ (lowest score) on their pre-essays. The percentage of students of treatment teachers scoring a ‘1’ on post-essays dropped markedly to 30.9%. The percentage of students of treatment teachers scoring a ‘2’ on their essays increased by 15.3%, from 28.5% on the pre-essay to 43.8% on the post-essay. Perhaps the most striking finding was that the number of students scoring a ‘3’ or a ‘4’ (highest score) on their essays more than doubled from 29 (11.6%) students on the pre-essay to 63 students (25.3%) on the post-essay.

Table 1: Treatment Essay Scores

Score	Pre-Essay		Post-Essay	
	Freq	percent	Freq	percent
0	0	0.0%	0	0.0%
1	149	59.8%	77	30.9%
2	71	28.5%	109	43.8%
3	27	10.8%	56	22.5%
4	2	0.8%	7	2.8%
Total	249	100%	249	100%

Although this aggregate comparison is revealing, what is even more interesting is a paired comparison that matches the pre-essay score of a particular student with this same student’s post-essay score. For example, if a student received a ‘2’ on his/her pre-essay and a ‘3’ on his/her post-essay, we know that this student increased his/her score by one rank and thus

showed improvement between the beginning and end of the school year (moving from what might be characterized as a “basic” writing level to a “proficient” level of essay writing). The distribution of all paired comparisons of pre and post essays for students of treatment teachers is shown in Table 2.

Table 2: Treatment Net Change

Change	Freq	Percent
-3	0	0.0%
-2	2	0.8%
-1	25	10.0%
None	109	43.8%
+1	88	35.3%
+2	23	9.2%
+3	2	0.8%
Total	249	100.0%

Less than half (43.8%) of the treatment students had no change in essay scores. Overall, 113 (45.3%) students increased their performance, whereas 27 (10.8%) students had a decrease in performance. Of those treatment teacher students whose scores increased pre- to post-, between one fifth and one quarter (25 of 113 students, or 22.1%) increased their performance by two or more rank scores. A sign test ($p < 0.001$) confirms that, where there was a change in score from pre to post-essay, the score is far more likely to have increased than to have decreased.

Control Group Performance Analysis

A summary of pre and post-essay scores for students of control group teachers is given in Table 4. Comparison of the distributions for pre and post-essay scores suggests a slight downward trend from pre-essays to post-essay scores.

	Pre-Essay		Post-Essay	
	Freq	percent	Freq	percent
0	0	0.0%	0	0.0%
1	68	42.8%	79	49.7%
2	76	47.8%	62	39.0%
3	12	7.5%	18	11.3%
4	3	1.9%	0	0.0%
Total	159	100%	159	100%

This slight aggregate downward trend appears to be reflected in the distribution of all paired comparisons of pre and post-essay scores for students of control teachers shown in Table 5. However, sign test results were not statistically significant, indicating that, where there was a change in score from pre to post-essay, neither an increase nor a decrease was more likely.

Change	Freq	Percent
-3	1	0.6%
-2	5	3.1%
-1	35	22.0%
None	86	54.1%
+1	27	17.0%
+2	5	3.1%
+3	0	0.0%
Total	159	100.0%

Limitations of Quantitative Analysis

Although the treatment and control students were well matched with respect to SES, logistical and other problems encountered over the course of the study prevented a good match of treatment and control students by grade within the same schools or districts. (Arts and other elective classes often contain sophomores and seniors in the same class.) Where treatment and control teachers could be well matched by grade within schools or districts, final sample sizes were too low for meaningful analytical comparisons by grade level to be made.

The Impact of Classroom Dialogue on Student Thinking

A qualitative analysis of the student essays was carried out by the same UC Irvine English compositions instructors who had scored the essays. They found that the low-scoring (“below basic”) essays written by 59.8% of treatment group students at the beginning of the year were marked by the absence or insufficiency of three kinds of development. These were prioritized in the following order of importance: 1) lack of development of coherent lines of reasoning; 2) lack of good reasons to support the claims that had been made; 3) lack of any specific, concrete supporting details or examples (relevant or not). Analysis of the post-essays of students whose writing *had* improved over the course of the school year showed that their reasoning was more coherent, their claims were better supported, and more details were provided.

What had brought about this change? When participating teachers were surveyed about the effect of using quick-writes to introduce discussions, they emphasized the manner in which the written responses helped to sharpen students’ perceptions. At the beginning of the year, many writing-to-learn assignments had asked students to simply “Describe what you see.” The expectation was that students would use the vocabulary specific to the art form to describe a model’s pose, a short dialogue between actors, a brief sequence of dance steps. As a teacher explained: “We want them to see that art can be talked about and that the vocabulary of an art form can be used as a tool for conveying nuances.”

At the beginning of the year, many students had little more to say about a work of art than “I like it” or “I don’t like it.” When asked, they found it difficult to explain why. As a result of daily discussions, their focus gradually shifted to the creative process that had produced a specific work. Students began to notice details and envision possibilities for what a work might

become. Their comments became more specific. This specificity also showed up in their quick-writes, which included more detail and explanation.

Before introduction of the writing-to-learn activities, the teachers had led similar oral discussions. However, not all students had participated. Most often, a few students volunteered answers while others stared out the window or doodled. Assigning a “quick-write” required all students to spend 3-4 minutes focusing on the assigned question. For students who were still learning English, this provided an opportunity to search their memories for words or to consult a dictionary. During the class discussion that followed, the teacher could call upon a broader group of students, confident that all had been given an opportunity to construct a thoughtful response.

Many teachers had students keep journals, in which they jotted down initial insights. Later, after further discussion with peers had sparked additional ideas and stimulated new perceptions, students would return to the journal and flesh out these first impressions, adding ideas that went beyond their first thoughts. The journals then became a reference that students could return to as they worked. Teachers collected the student journals every 2 to 3 weeks.

As the school year progressed, students would begin comparing works or performances. In theater classes, students compared video clips of Lawrence Olivier, Kenneth Branagh and Kevin Kline delivering the same monologue from Hamlet. Dance classes contrasted video clips that exhibited the choreographic vocabularies of Martha Graham and Twyla Tharp. As students’ understanding of the art form grew, they were asked to point out strengths and limitations. A dance teacher explained how this carried over to students’ discussions in the rehearsal hall:

Students were able to analyze movement and discuss if it was appropriate or not, if it was working or not. That was good for their informed judgment.

The quick-writes and discussions were usually a component of the lecture/demonstration session at the beginning of class. Sometimes quick-writes were used as part of a critique session

at the end of class. However, these sessions were always kept brief, to allow enough class time for students to work. Yet, despite their brevity, the periods of reflection and sharing of insights heightened student awareness of the thinking processes that had led to specific artistic choices.

This awareness of the cognitive processes inherent the creation of works of art stimulated discussion on how a specific work might have been different had other aesthetic choices been made. Students began to discuss their own artistic choices. Eventually, they were able to share their reasoning process, both in oral discussions and in writing. This improved ability to explain their reasoning enabled students to write more coherent, detailed essays at the end of the year.

Implications for Practice

The visual and performing arts students who wrote the essays analyzed in this study attended urban schools that had been designated “low-performing” by the state. Many spoke a language other than English at home. Further research is needed to determine whether other student populations derive similar benefits from the continuing dialogue about the creative process that adds a unique sense of excitement to high quality arts classes. However, for many students in this study, learning to Envision, Express, Observe, and Reflect during arts classes appeared to provide a pivotal preparation for learning in other content areas.

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