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This article is drawn from a paper presented by the authors at the American Educational Research Association’s 2011 annual meeting. That paper presented findings from Year 1 of the study.

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Abstract:

This paper examines the impact of two approaches to teacher professional development in arts integration – a summer institute model and a model combining the summer institute with instructional coaching. In an experimental design, the intervention trained third and fourth grade teachers to integrate visual arts and theater into reading curriculum. Findings suggest the coaching plus institute intervention had a greater impact on teacher confidence, use and frequency of arts integration than the institute-only intervention or on the comparison group.

Coached teachers reported greater confidence integrating the arts, produced higher-quality work samples, taught more reading concepts with arts integration, implemented more arts standards, and used arts integration more frequently than did the institute-only teachers or the control group teachers. Coached teachers reported in greater numbers about the positive impact the professional development had on their teaching practice, including feeling more creative, inspired and finding greater enjoyment in teaching. Coached teachers were more likely than institute-only teachers to correctly use state VAPA standards and to perceive student progress towards those standards.

Institute-only teachers demonstrated greater confidence in and used arts integration more frequently than did the comparison group. However, they did not reach the same levels as the coached teachers and were more likely to report time constraints and other roadblocks to successful implementation.

Teachers in both treatment groups reported high student engagement and better expression of learning by students when using arts integration instructional strategies.

This project was funded through the U.S. Department of Education Arts in Education Model Development and Dissemination program.

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"Unlocking My Creativity": Teacher Learning in Arts Integration Professional Development

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This article examines the impact of two approaches to teacher professional development in arts integration – a summer institute model and a model combining the summer institute with instructional coaching. In an experimental design, the intervention trained third and fourth grade teachers to integrate visual arts and theater into reading curriculum. Findings suggest the coaching plus institute intervention had a greater impact on teacher confidence, use and frequency of arts integration than the institute-only intervention or the comparison group.

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Institute-only teachers demonstrated greater confidence in, and used, arts integration more frequently than did the comparison group. However, they did not reach the same levels as the coached teachers and were more likely to report time constraints and other roadblocks to successful implementation.

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Introduction

This article examines the impact of an arts integration professional development initiative, DREAM (**D**eveloping **R**eading **E**ducation with **A**rts **M**ethods). DREAM provides in-depth learning for classroom teachers in the integration of theater and visual arts into their reading curriculum. DREAM is a partnership between the San Diego County Office of Education, North County Professional Development Federation (NCPDF) and California State University San Marcos (CSUSM), funded by an Arts in Education Model Development and Dissemination grant from the U.S. Department of Education.

The DREAM project is an evolution of a successful teacher professional development program, SUAVE. SUAVE (Socios Unidos para Artes Via Educación - United Community for Arts in Education) was a coaching model for teacher professional development created at CSUSM, partnering classroom teachers with professional artists to learn how to integrate the arts into their classroom curriculum.

The investigation of best practices in arts integration has been highlighted by researchers as a useful and necessary resource (i.e., Burnaford, 2009; Catterall & Waldorf, 1999; Garrett, 2010; Ingram & Seashore, 2003; Mages, 2008; Saraniero & Goldberg, 2008; Scripp, 2007). The idea of arts integration as a methodology for improving student learning is rooted in the understanding that children have different modes of learning (Gallas, 1994; Gardner, 1993; Goldberg, 2012). In learning through the arts, students are able to work with information on multiple levels simultaneously, thus increasing their understanding and retention.

The DREAM staff chose to use two art forms for the intervention, theater and visual art. Arts integration interventions, particularly those using theater, have been found to be effective in

engaging students (Bellisario & Donovan, 2012; Cawthon, Dawson & Ihom, 2011; Gallagher & Service, 2010). Theater has also been found to have a strong influence on student achievement in literacy and reading (Parks & Rose, 1997; Rose, Parks, Androes, & McMahon, 2000; Winner & Hetland, 2000), but the evidence is less clear regarding the relationship between visual arts and reading (Burger & Winner, 2000). The art forms were selected strategically by the DREAM staff. Earlier research in the SUAVE project suggested that teachers were reluctant users of theater, even with the research evidence to support its effectiveness (Saraniero & Goldberg, 2008). However, teachers reported being more comfortable with, and more likely to use, visual art.

It has been well documented that teachers, particularly elementary generalist teachers, do not typically have the educational background or preparation to provide standards-based arts instruction (Guha, Woodworth, Kim, Malin, & Park, 2008). Professional development can positively impact teachers' use of arts integration (Catterall & Waldorf, 1999; Ingram & Seashore, 2003). With this in mind, this article examines two models of teacher professional development in arts integration. The decision to explore two models came from a very pragmatic question – what works best in teacher learning? The DREAM project asked this question during the planning phase in 2007, for which there were no immediate or obvious answers. Research provided hints but no conclusive direction. The decision was made to add this investigation to the project and compare the results.

The DREAM staff chose two professional development models. One model was a stand-alone summer institute. The other model supplemented the summer institute with one-on-one arts integration coaching throughout the school year. Previous research found mixed results with these two professional development interventions. Coaching coupled with workshop training has been found to be successful in improving instruction (Batt, 2010; Rudd, Lambert, Satterwhite, & Smith, 2009), while other research suggests, however, that this combination does not lead to teacher retention of professional development learning (Goldschmidt & Phelps, 2009). And while coaching combined with institute training can improve instructional practice, the impact on student learning outcomes is more elusive (Garet, Cronen, Eaton, Kurki, Ludwig, Jones, et al., 2008).

Bearing in mind the importance of professional development on teacher learning, its design is an important consideration. Darling-Hammond, Chung Wei, Andree, Richardson & Orphanos (2009) point to both quantity of time and duration of learning. Teachers who spent 30-80 hours in professional learning over extended periods of time were found to be most positively impacted. In addition, professional development activities extended over time tended to provide more opportunities for active and engaged learning by teachers, such as planning cooperatively, observing and reviewing student work. Longer activities were also better integrated into the teacher's school day and were more coherently tied to expectations, such as teaching to standards.

Longer and embedded professional development also appears to have benefits for students, particularly those whose teachers are learning about arts integration. Quantity of time spent engaged in arts integration matters (Ingram & Seashore, 2003). The more time a teacher spent engaging students in arts integration, the greater impact on student academic achievement.

Project Design

In order to determine the efficacy and impact of the two professional development formats, the DREAM project drew on third and fourth grade teachers from ten participating

school districts, ranging from rural communities to mid-sized cities. During each of the three years of the study, up to 50 teachers a year volunteered to attend a week-long summer institute, receiving approximately 30 hours of professional development in arts integration, specifically focusing on integrating theater and visual arts into reading. During the institute, teachers received standards-based instruction in both art forms from instructors who modeled lessons applicable to third and fourth grade reading and arts curricula. Participating teachers learned arts vocabulary and concepts, as well as arts skills including drawing, bookmaking, puppetry and theater improvisation. Teachers planned lessons to use during the upcoming school year. Working in small groups, teachers applied their learning to create puppet plays as a culminating project. At the end of the summer institute, they were randomly assigned to receive instructional arts coaching during the upcoming school year or to apply their learning independently. A third group, the control group, received no intervention during the summer or the school year.

Teachers who received coaching spent 25 hours with the coach over the school year in a variety of activities, including lesson planning, observing each other teach, co-teaching, and reflecting together. The teachers who attended the institute, but who did not receive coaching, implemented their arts integration lessons and learning independently.

Research Design and Methodology

Research Question

DREAM's purpose in investigating these different professional development approaches was to identify possible best practices in preparing teachers to integrate theater and visual arts in their classrooms to enhance student learning in reading. The research questions were as follows:

- Which professional development model increases teacher proficiencies in arts integration and in what ways?
- Which professional development model improves student academic performance in reading comprehension?

Theoretical Framework

Laura Desimone's framework for teacher professional development was used to identify the necessary elements for effectiveness (Desimone, 2009). Desimone identifies five core features of effective professional development for teachers:

- *Content focus* highlights that the purpose of the professional development is to improve teachers' knowledge of subject matter content and to identify how children then learn that content.
- *Active learning* occurs when teachers are actively involved in meaningful discussion, planning and practice. This includes the opportunity to observe and be observed in utilizing new concepts and knowledge; planning how to use new curriculum and teaching methods in the classroom; and reviewing student work.
- *Coherence* requires that professional development needs to be aligned with other expectations placed on teachers. Professional development needs to relate to content standards and assessment and build on teachers' previous knowledge.
- *Duration* is important, as teachers need the appropriate number of hours over a period of time in order for professional development to be effective in improving teaching practice.

Collective participation incorporates a collaborative, communal approach to professional development. Teachers from the same school or the same grade work together and create a dynamic and engaged learning community.

Study Design

Third and fourth grade teachers were recruited for the study during the school year prior to each summer institute. To be eligible, participants had to teach in a school where 35% of the students qualified for free or reduced lunch and where the school was located in one of ten participating districts. The ten participating school districts were part of a consortium that received the grant for this study. The teachers who volunteered to participate were stratified by grade level. Once stratified, teachers were randomly assigned via lottery to one of three research groups.

- A. Coaching Group: Up to 25 teachers were assigned to this group each year, and they attended the summer institute. They also received on average 25 hours of instructional arts coaching during the school year. Teachers received a stipend for attending the summer institute, but not for the coaching.
- B. Institute-only Group: Up to 25 teachers were assigned to this group each year, and they attended the summer institute but received no coaching support during the school year. Teachers received a stipend for attending the summer institute.
- C. Control Group: These teachers did not participate in the summer institute or receive coaching. Enrollment in this group averaged about 39 teachers each year. They received a stipend for completing the pre- and post-tests.

Teachers participated in a treatment group for one school year, although some teachers participated in the comparison group for multiple years. Each spring, prior to the institute, new teachers were randomly assigned to study groups via the lottery. To address ethical concerns about equity and access, the comparison group teachers were eligible to enter the lottery at the completion of one year in the comparison group. Seventeen teachers moved from the comparison group to the coached group and nine to the institute-only group. Two teachers remained in the comparison group for the length of the study.

Study Participants

Over the three years of the project, 116 teachers participated in the treatment groups. Some attrition in the treatment groups occurred during the worst of the economic crisis in California, resulting in teachers being laid off or reassigned to other grades or schools. Treatment teachers who were laid off or reassigned after the summer institute were not replaced in the study group.

To confirm that the research groups were statistically similar, all study teachers took a demographic pre-test about their own education and teaching experience. Other research has found these factors to be influential in student success. Insuring that the randomly assigned groups are similar in these factors eliminates the possibility of other variables conflicting with the intervention (Coalition for Evidence-Based Policy, 2005).

The study groups were found to be equivalent on key variables. One-way ANOVAs were used to identify any statistically significant differences between study groups, and no differences were found on the pretests for teachers' levels of educational attainment, total years of teaching, or years teaching at current grade level or arts coursework in undergraduate or teacher preparation programs. Table 1 highlights these variables for each of the study groups.

Table 1
Study Group Demographics

| Demographic variable | Coached group | Institute-only group | Control group |
|---|-----------------------------------|-----------------------------------|---------------------------------|
| Number of participants | 60 | 56 | 71 |
| Number of 3 rd grade teachers | 40 | 33 | 46 |
| Number of 4 th grade teachers | 20 | 21 | 25 |
| Number of 3 rd /4 th teachers | 0 | 2 | 0 |
| Average years teaching | 12.9 years | 11.9 years | 12.3 years |
| Average years teaching current grade | 11.15 years | 10.5 years | 8.14 years |
| Average education attainment | 41.7% completed at least Master's | 37.5% completed at least Master's | 53% completed at least Master's |
| % of arts major/minor | 9.5% | 3.6% | 8.3% |
| Arts classes in credential program | 13% | 17.9% | 15.5% |

Data Sources

In order to provide strong evidence of the project impact, an experimental design with a stratified random sample was utilized for this study. In addition, qualitative methods were used to complement the formative component of this project. This “embedding” of qualitative methods into a quantitative design allows greater dimension to the research without compromising the integrity of the experimental design (Creswell & Plano, 2007). Table 2 below describes the data collection instruments.

Table 2
Data Sources

| Instrument | Description | Study group |
|--|--|---|
| Teacher participant pre-test/post-test survey <i>Administered in April/May before institute and the following April/May at the end of the intervention year.</i> | Project-developed survey collected demographic data and measures about teacher knowledge and confidence in arts instruction, arts state standards and arts integration as well as frequency of arts integration. Included Likert-scale and open-ended questions. | <ul style="list-style-type: none"> • Coaching group • Institute-only group • Control group |
| Post-institute survey <i>Administered June at conclusion of institute</i> | Assessed teacher knowledge and confidence in arts instruction, arts state standards, arts integration and institute feedback. | <ul style="list-style-type: none"> • Coaching group • Institute-only group |
| Lesson plan work samples <i>December & March of each year</i> | Arts integration lesson used in reading instruction. Scored with project-designed rubric by project evaluator. | <ul style="list-style-type: none"> • Coaching group • Institute-only group |
| Focus groups <i>January of Years 1 and 2</i> | Examined impact of intervention on teaching practice and student learning. Provided formative evaluation data as well. | <ul style="list-style-type: none"> • Coaching group • Institute-only group |
| Mid-year survey <i>January Year 3</i> | Examined impact of intervention on teaching practice and student learning. Provided formative evaluation data as well. | <ul style="list-style-type: none"> • Coaching group • Institute-only group |
| California Standards Test Language Arts test <i>Testing in April/May of each intervention year</i> | State-administered normed test in English language arts. | <ul style="list-style-type: none"> • Coaching group • Institute-only group • Control group |

Data Analysis

Data were analyzed to determine the impact of the intervention on teacher practice as well as student learning in reading. The data analysis process utilized one-way ANOVAs and t-tests to determine the significance of differences between groups. Descriptive statistics were also used for quantitative data. Descriptive and content analyses were used with qualitative data.

The teacher surveys and interviews were examined for themes and patterns. Triangulation across different methods was used to confirm findings.

Findings

Findings strongly suggest that the coaching intervention appears to have made the most impact on teacher confidence and use of arts integration. This was consistent across the three intervention years. The impact on improved student performance in language arts as measured by state standardized tests was not as consistent and proved more variable.

Which Professional Development Model Increases Teacher Proficiencies in Arts

Integration?

Coached teachers reported greater confidence integrating the arts, produced higher-quality work samples, taught more reading concepts with arts integration, implemented more arts standards, and used arts integration more frequently than did the institute-only teachers or the control group teachers. Institute-only teachers demonstrated greater confidence in, and used arts integration more frequently, than did the comparison group. However, they did not reach the same levels as the coached teachers and were more likely to report time constraints and other roadblocks to successful implementation.

Teacher confidence in arts integration. Confidence in integrating the arts in general, as well as theater and visual art specifically, was, on average, higher at the end of the treatment year for the coaching group than the institute-only group or the control group. There were no statistically significant differences found between study groups on the pretest's confidence measures or using a one-way ANOVA.

A statistically significant difference was found when comparing year-end teacher confidence integrating the arts in general, using a one-way ANOVA, producing a significant F value ($F_{(2,146)} = 11.817, p < .001$). The post hoc Tukey test found significant differences between the coached group ($M=3.16$) and the institute-only group ($M=2.76$), as well as the coached group and the comparison group ($M=2.60$) (see Table 3)

Table 3

Tukey Comparison for Teacher Confidence

| Comparisons | Mean Score Difference | Std. Error | 95% CI | |
|-------------------------|--------------------------|---------------|----------------|----------------|
| | | | Lower Bound | Upper Bound |
| Coaching vs Comparison | .667*** | .114 | .40 | .94 |
| Institute vs Comparison | .530*** | .121 | .24 | .82 |

***p<0.001

A statistically significant difference was found when comparing the year-end confidence integrating theatre, using a one-way ANOVA ($F_{(2,146)} = 17.519$, $p < .001$). The Post hoc Tukey test found significant differences between the coached group ($M=2.83$) and the comparison group ($M=2.02$), as well as the institute-only group ($M=2.55$) and the comparison group. There was no significant difference between the treatment groups at the end of the intervention.

When comparing the year-end confidence integrating visual art, a statistically significant difference was found using a one-way ANOVA ($F_{(2,146)} = 10.110$, $p < .001$). The Post hoc Tukey test found significant differences between the coached group ($M=3.12$) and the comparison group ($M=2.51$), as well as the institute-only group ($M=2.98$) and the comparison group. There was no significant difference between the treatment groups at the end of the intervention.

Teacher confidence using arts standards. When asked about their confidence in using state visual and performing arts (VAPA) standards, there was no difference among groups on the pretest. The post-test found both treatment groups were more confident than the comparison group (see Table 4).

Table 4

Summary of Teacher Confidence Using VAPA Standards

| | <i>Post Intervention Year</i> | | | |
|----------------|-------------------------------|-----|-------|-----------|
| Between Groups | 17.988 | 2 | 8.994 | 22.203*** |
| Within Groups | 58.735 | 145 | .405 | |
| Total | 76.723 | 147 | | |

*p < 0.05, ***p<0.001

Teacher use of arts standards. The teacher work samples suggest that the coaching intervention had a greater impact on teachers' use of arts standards. The coached teachers were more likely than the institute-only teachers to correctly use the state arts standards, and their lessons were better aligned with the VAPA standards. At the end of Years 2 and 3 of the study, teachers were asked which state standards they taught to that school year. Their responses are reported in Table 5.

Table 5

Reported Use of State Arts Standards in Years 2 & 3

| | Coached teachers (n=42) | Institute-only teachers (n=35) |
|--|----------------------------|--------------------------------------|
| Artistic Perception | | |
| • Theater | 62% | 31% |
| • Visual Arts | 76% | 54% |
| Creative Expression | | |
| • Theater | 83% | 80% |
| • Visual Arts | 93% | 80% |
| Historical & Cultural Context | | |
| • Theater | 26% | 29% |
| • Visual Arts | 41% | 40% |
| Aesthetic Valuing | | |
| • Theater | 36% | 17% |
| • Visual Arts | 45% | 40% |
| Connections, Relationships, Applications | | |
| • Theater | 69% | 46% |
| • Visual Arts | 64% | 57% |

Frequency of arts integration. The coached teachers integrated both theater and visual art more frequently than either the institute-only teachers or the control group teachers. In the surveys, teachers indicated their frequency on a scale of 1-5, with 5 being most frequent (daily) and 0 being not at all.

There was no significant difference in the pretests between groups in the reported frequency of visual art integration. However, there was a pretest difference in the frequency of theater integration into the reading curriculum using a one-way ANOVA ($F_{(2,158)} = 4.182, p < .05$). The Post hoc Tukey test found significant differences between the institute-only group ($M=2.20$) and the comparison group ($M=2.98$). There was no significant difference between the institute-only and coached ($M=2.63$) groups.

There were significant differences between groups at the end of the year for both visual art and theater integration. Using a one-way ANOVA ($F_{(2,139)} = 8.736, p < .001$), the coached teachers ($M=2.68$) reported more frequent theater integration than the institute-only group ($M=2.17$) and the comparison group ($M=1.81$). The Post hoc Tukey test found significant differences between the coached group and the other two study groups. The coached teachers also reported greater frequency of visual arts integration than the other groups ($F_{(2,143)} = 6.454, p < .01$). The Post hoc Tukey test found significant differences between the coached group ($M=3.20$) and the comparison group ($M=2.46$). There was no significant difference between the institute-only group ($M=2.85$) and the other groups.

Use of arts integration instructional strategies. Treatment teachers were asked three open-ended survey questions on the end-of-intervention survey about their use of arts integration in their reading instruction. Coached teachers reported using arts integration more broadly

across the reading curriculum to teach a total of 17 concepts in reading, such as vocabulary, comprehension, and character development and analysis, whereas institute-only teachers taught 10 concepts. One coached teacher wrote at the end of the treatment year, “[The arts integration strategies] gave new perspective and ideas on how to reach students, a fresh look at how to teach basics with new methods and brought back fun to the classroom!” An institute-only teacher described how she applied her professional development learning.

[The arts integration strategies] helped me in every way possible. I used them all the time! With every story, and every vocabulary word, DREAM strategies were used. We pantomimed academic vocabulary words, as well as words from our HM reading selections. We also pantomimed parts of selections to assist with comprehension, predicting outcomes, character analysis, big ideas from the story, as well as inferences and themes within the story.

Efficacy of arts integration as a reading strategy. When asked on the year-end survey, 95% of both treatment groups reported that arts integration was an effective reading strategy.

Impact on teaching practice. Treatment teachers were asked to reflect on any changes to their teaching practice. The coached teachers reported a wide variety of impact, with 17% of the respondents indicating that the professional development resulted in their being more creative, engaged, or just better, as a teacher. After a year of coaching, one teacher stated,

I find that I am more excited and engaged. [Arts integration] allows my creativity to come out. It sets a focus in my planning (When and what are we going to do art-wise for this story?). I am more interesting as a teacher, and hopefully my students will have learned more.

This acknowledgment of change by the coached teachers was significantly greater than the institute-only teachers who reported these same results (8%). One institute-only teacher described her experience by saying, “I believe that the DREAM project [is] unlocking my creativity and helped me think ‘outside the box.’” But other institute-only teachers who did report a change in their practice did not describe it as extensively impacting their teaching as did coached teachers. An institute-only teacher reflected on her experience: “[DREAM] has given me the confidence to integrate the arts into the curriculum. I found DREAM very helpful. It’s still hard to find the time to do art because of all the testing we are required to do.”

Interestingly, more institute-only teachers (15%) reported that, as a result of using what they learned from professional development, they were more confident in trying new things with their students, whereas only 9% of coached teachers made this statement.

Among the institute-only teachers, the largest group (17%) reported that they believed they needed an instructional arts coach to successfully implement arts integration. These teachers wanted a coach for accountability or as a creative resource. One institute-only teacher stated that, “What would have been helpful to me would [be] to have had a coach and then had the coach look at my schedule... and helped me work it all in. I would have felt accountable to that person.” Another institute-only teacher described her wish for a coach in that she “did not feel creative on [her] own.” Among the coached teachers, 87% reported in a Likert-scale survey question on the post-test that the coaching was a successful experience. A coached teacher reported that, “I really like this integration model and think it is very effective... The focus on integration with a coach guiding the teacher is brilliant. Truthfully, this has been the best and most useful program that I have ever participated in.”

Thirteen percent of institute-only teachers reported that they were unable or severely restricted in their use of arts integration due to time constraints and other pressures, but no

coaching teachers reported time constraints or competing pressures. About 7 % of the coached teachers, but none of the institute-only teachers, reported that the professional development had no impact on their teaching practice.

Availability of support and resources. The institute-only teachers reported in focus groups and on surveys some key problems in successfully implementing the methods. These challenges included:

- The general lack of resources in public education had specific impact on the DREAM teachers. Schools and/or districts no longer would provide art supplies, and, due to the low-income status of the participating schools, many teachers felt that parents could not be asked to provide financial support. While nearly every teacher wanted to use visual arts, the cost of materials was prohibitive to some. One teacher noted that she integrated theater rather than visual art, because it required no supplies. Another teacher reported that she taught directed drawing, because it required only pencils and paper, which were available in her classroom. Coached teachers did not face these challenges to the same extent, as their art coaches would often provide or help the teacher identify resources or “work-arounds”.
- The lack of consistent administrator support was also an issue. Institute-only teachers reported that their principal did not know about the project or their participation. One institute-only teacher reported that her principal specifically forbade her from integrating the arts during language arts. Other teachers reported being discouraged to use integration by their principals. The coaching teachers appeared to have a slightly easier time of this. The coaches' practice of meeting the principals helped tremendously in gaining support. One teacher reported that her coach's interactions with the principal significantly eased the way for her use of arts integration.
- Very limited time to integrate the arts. All of the treatment teachers had to use a pacing guide tied to their students' reading textbooks. The institute-only teachers reported the need for more lesson planning during the summer institute. They had to figure out on their own how to connect the professional development to the curriculum, whereas the coached teachers had support from their coach for that. The weekly presence of the coach also held the coached teachers accountable for using the methods.

Which Professional Development Model Improves Student Academic Performance in Reading Comprehension?

Differences in student outcomes were not as easily distilled as teacher outcomes. Treatment teacher reports that student learning outcomes were very positive, although mean scores on the state language arts test did not show a statistically significant difference between groups.

Teacher-reported student outcomes. At the end of each intervention year, treatment teachers responded to open-ended survey questions about their observations of their students while using arts integration. Overall, both groups were very positive about the impact of arts integration on their students' academic learning and social development. Nearly all the teachers in both treatment groups described their students as more engaged when learning through arts integration. One coached teacher reported, “[My students have] high levels of motivation and engagement, eager anticipation, and greater enjoyment of the learning process.” Table 6 describes the most frequently reported observations by the treatment teachers.

Table 6
Years 1-3 Treatment Teachers' Most Frequent Observations of Student Learning During Arts Integration

| | Coached group | Institute-only group |
|--|----------------------|-----------------------------|
| Greater student engagement | 100% | 95.6% |
| Better retention of content learned | 5% | 17.4% |
| Better able to express themselves/their learning | 14.2% | 15% |
| Students made deeper connections to content | 12.5% | 8.5% |

Both treatment groups reported their students' making progress toward the state arts standards over the course of an intervention year. As seen in Table 6, more coached teachers reported progress than did institute-only teachers. The reported progress by students mirrors the use of arts standards reported in Table 5.

More coached teachers identified students as having made deeper connections with the content and becoming more self-confident. More institute-only teachers reported their students demonstrating greater retention of material. Teachers in both treatment groups reported that their students were better able to express themselves and their learning as a result of participating in arts integration. A coached teacher summarized her students' learning in this way:

Using art in teaching reading gives the kids confidence to think about what they have read. It gives many of those less verbal students a voice, or a way to shine. They are able to express themselves in alternate ways. The students are able to make and retain connections to stories and characters. They go back to their product and admire it, and reflect on it.

Table 7

Teacher Perceptions of Student Progress Toward State Arts Standards in Years 2 & 3

| | Coached teachers (n=42) | Institute-only teachers (n=35) |
|--|----------------------------|--------------------------------------|
| Artistic Perception | | |
| • Theater | 52% | 31% |
| • Visual Arts | 62% | 43% |
| Creative Expression | | |
| • Theatre | 79% | 77% |
| • Visual Arts | 88% | 77% |
| Historical & Cultural Context | | |
| • Theater | 26% | 29% |
| • Visual Arts | 29% | 37% |
| Aesthetic Valuing | | |
| • Theater | 29% | 11% |
| • Visual Arts | 38% | 26% |
| Connections, Relationships, Applications | | |
| • Theater | 71% | 46% |
| • Visual Arts | 60% | 57% |

State language arts test scores. The state standardized test was used as a pre- and post-test for examining the impact of the arts integration professional development on student learning in reading. The test that students took in the year prior to being in an intervention classroom was used as the pre-test and the test they took in the spring of the intervention year served as the post-test.

There were significant differences found between groups in the third grade pre-test but no significant difference between groups in third grade post-test. (See Table 8.) There were significant differences found between the coaching and comparison groups in the fourth grade pre-test and post-test. (See Tables 9 and 10.)

Table 8

Summary of ANOVA of Standardized Test Scores

| <i>Third Grade Pre-Test</i> | | | | |
|-------------------------------|----------------|------|-------------|-----------|
| | Sum of Squares | Df | Mean Square | F |
| Between Groups | 85973.832 | 2 | 42986.916 | 11.582*** |
| Within Groups | 7749735.406 | 2088 | 3711.559 | |
| Total | 7835709.238 | 2090 | | |
| <i>Fourth Grade Pre-Test</i> | | | | |
| | Sum of Squares | Df | Mean Square | F |
| Between Groups | 24220.376 | 2 | 12110.188 | 3.395* |
| Within Groups | 6402058.087 | 1795 | 3566.606 | |
| Total | 6426278.463 | 1797 | | |
| <i>Fourth Grade Post-Test</i> | | | | |
| Between Groups | 37264.860 | 2 | 18632.430 | 6.001** |
| Within Groups | 5573468.377 | 1795 | 3104.996 | |
| Total | 5610733.237 | 1797 | | |

*p < 0.05, ***p<0.01

Table 9
Tukey Comparison for Third & Fourth Grade Scores

| Comparisons | Mean Score Difference | Std. Error | 95% CI | |
|--|-----------------------|------------|-------------|-------------|
| | | | Lower Bound | Upper Bound |
| 3 rd Grade Pre-test Coaching vs Comparison | -14.315*** | 3.189 | -21.79 | -6.84 |
| 3 rd Grade Pre-test Institute vs Comparison | -11.655*** | 3.264 | -19.31 | -4.00 |
| 4 th Grade Pre-test Coaching vs Comparison | 8.634* | 3.324 | .84 | 16.43 |
| 4 th Grade Post-test Coaching vs Institute | 10.496** | 3.506 | 2.27 | 18.72 |
| 4 th Grade Post-test Coaching vs Comparison | 9.443** | 3.102 | 2.17 | 16.72 |

*p < 0.05, **p < 0.01

Table 10

Differences between CST ELA Pre-test & Post-test

| | Pretest | | <i>3rd Grade</i> Posttest | | n | 95% CI | t | df |
|---|---|--------|---|--------|-----|---------------------|--------------------|-----|
| | M | SD | M | SD | | | | |
| | Students of 3 rd grade coached teachers | 343.59 | 61.082 | 333.42 | | | | |
| Students of 3 rd grade institute- only teachers | 346.25 | 64.073 | 337.39 | 61.991 | 622 | 6.041,11.676 | 6.174*** | 621 |
| Students of 3 rd grade comparison group teachers | 357.90 | 58.187 | 340.96 | 59.797 | 792 | 14.197, 19.697 | 12.098*** | 791 |
| | <i>4th Grade</i> | | | | | | | |
| Students of 4 th grade coached teachers | 340.07 | 57.736 | 363.23 | 53.562 | 550 | -26.230, -20.097 | - 14.838** * | 549 |
| Students of 4 th grade institute- only teachers | 334.31 | 58.142 | 352.74 | 58.011 | 467 | -21.953, -14.891 | - 10.250** * | 466 |
| Students of 4 th grade comparison group teachers | 331.44 | 61.983 | 353.79 | 55.818 | 781 | -25.114, -19.595 | - 15.901** * | 780 |

***p < 0.001

Discussion

Limitations

There were several limitations in this research project that would impact the ability to generalize results to other arts integration professional development projects. They were:

- The sample size of teachers. While random assignment was used for the study groups, the small number of teachers does limit the ability of generalization of the findings.
- While teachers were randomized into study groups, their students were not always randomized into their classrooms. Each of the participating school districts had different classroom assignment policies and procedures. It is possible that there are a variety of variables that impact the student test score data that were not collected for this study.
- Treatment teachers were not "pre-tested" on their lesson plan design or on their use of VAPA standards. While the coached teachers were able to demonstrate progress in their lesson plan design and use of standards, the lack of pre-intervention data is a challenge.

Results

In returning to the original question asked by the DREAM staff, "Which professional development model works best," the evidence here leads us to the coaching model. The coaching intervention appears to have had a deeper impact on teacher practice and attitudes as well as on student academic success. The evidence suggests that the summer institute alone was able to build confidence and knowledge in arts integration, and teachers were able to apply their learning to a limited extent. The coaching intervention, however, appears to have further sustained that confidence, honed new skills and knowledge and insured their application. This evidence is in alignment with several core features of Desimone's (2009) framework, particularly content focus, active learning and duration.

Teacher Outcomes

Changes in practice. There were significant disparities in the progress made between the coached teachers and the institute-only teachers. The coached teachers overall reported and demonstrated that they had made significant changes in their practice. They taught to more arts standards, used integration more frequently and to teach a greater variety of reading concepts. They also reported in greater numbers a sense of renewal or creativity in their teaching. There were unexpected supports provided by the coaches that emerged during the intervention that contributed to this change: art supplies and/or solutions, administrator support and connection to the reading curriculum. An expert resource, such as an arts coach, for support, problem-solving and brainstorming were critical to the success of the coaching process. During the coaching process, the arts coach's regular presence provided a variety of functions, including keeping the teacher regularly engaged with the new practices; helping the teacher create new integrated lessons; and, modeling new art and theater techniques and skills.

The institute-only teachers self-reported that they were able to make progress toward changing their practice to include arts integration. Institute-only teachers made greater change than the comparison group teachers, but did not achieve what the coached teachers did. They were more likely to report time constraints and other pressures preventing their application of arts integration. These roadblocks were in keeping with other research findings about challenges faced by teachers incorporating the arts (Oreck, 2004). The coaching model appeared to

circumvent some roadblocks for teachers, better meeting Desimone's (2009) core element of coherence. The differences between the treatment groups' use of, and confidence with, the VAPA standards should be particularly noteworthy with the newly created national core arts standards (NCCAS, 2013). These new standards offer exciting possibilities for arts instruction and integration. Supporting teachers with appropriate professional development to teach to these new standards so that students may meet them will be key to successful adoption.

Dosage. The length of the intervention may also play a critical role in changing teacher practice. Coached teachers received almost twice the professional development hours as the institute-only teachers. Dosage appears to be a crucial element in teacher learning in areas, such as arts integration, in which generalist elementary teachers do not necessarily have background, education or even exposure to the arts. Professional development needs to include fundamental knowledge and skill building in the arts, as well as arts integration pedagogy, and these take time. The combination of the coaching coupled with the institute promoted significant change in practice for teachers' use of arts integration. Our findings reinforced the findings from other research about the power of extended periods of learning and social learning in teacher professional development.

Student Outcomes

State language arts test scores. Student outcomes provided some mixed findings, with fourth grade students of coached teachers having made the most significant improvement in their post-test scores over their pre-test scores. However, the arts appear to have contributed to student learning in ways undetected by current state testing.

Evidence of learning beyond testing. The inclusion of the arts was greatly beneficial in other ways for students. The treatment teachers were extremely enthusiastic about the impact of arts integration on student reading. At the completion of each intervention year, 95% of both treatment group teachers reported that arts integration was an effective teaching strategy for reading comprehension. Among many benefits, treatment teachers reported that their students demonstrated higher student engagement and enthusiasm for learning, better retention of curriculum, deeper content connections, and improved expression of learning when utilizing arts integration. These qualities, which enhance classroom environments for learning and contribute to future academic success, were not measured by the state standardized test.

In conclusion, the findings contribute to a growing body of research that depth and breadth matter when teachers tackle learning in new areas. A supportive coach appears to be important to the learning, particularly one who can provide not only content expertise but also resources that allow the new practice to take shape. Shedding light on professional development approaches in arts integration offers the possibility of rich data not only for those interested in arts integration, but in other areas of teacher professional development.

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