

Program Evaluation
for

National Museum of Women in the Arts

Teachers Connect: Distance Learning in the Arts Program

Final Report September 2011

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Introduction

This program evaluation report covers the performance of the National Museum of Women in the Arts *Teachers Connect: Distance Learning in the Arts* program over the life of the four-year grant: one year designated for planning and preparation and three years of implementation. The *Teachers Connect* program, funded through a competitive grant awarded by the Office of Innovation and Improvement, U.S. Department of Education, is a technology-based professional development program designed to facilitate the integration of visual arts into existing curricular objectives, especially literacy-based objectives. As is required of federally supported programs, program progress and results were monitored and reported on an ongoing basis. *Teachers Connect* was specifically designed to serve the professional development needs of teachers of at-risk students.

Teachers Connect project partners included the following individuals and organizations: the National Museum of Women in the Arts (NMWA); Albuquerque Public Schools, Albuquerque, New Mexico; the Albuquerque Museum of Art and History, Albuquerque, New Mexico; Pascagoula Public Schools, Pascagoula, Mississippi. Project partners also included evaluation consultant Dr. Melissa Fein of *Measuring Merit*; and independent evaluator Dr. Robert Lissitz, professor and former chair of the Department of Measurement, Statistics, and Evaluation at the University of Maryland.

Program Objectives

The overriding goal of the *Teachers Connect* program was to train teachers to integrate visual arts literacy into their existing curricular objectives, especially literacy-based objectives. This included facilitating student acquisition of basic skills in creating and responding to the visual arts; furthering an interdisciplinary approach to learning through the arts; expanding the students' creativity, critical thinking, and communication skills; and, creating a replicable professional development tool that gives teachers the skills and resources necessary to integrate visual arts and literacy into their curricula.

The program provided participating teachers with a Summer Institute training workshop and an ongoing technology-based professional development program. The Summer Institute activities included:

- an orientation to the technology-based professional development program
- an overview of *Teachers Connect* objectives and learning strategies
- the presentation of a framework designed to enable teachers to incorporate visual arts into existing curricular objectives, especially literacy-based objectives
- the distribution of art materials designed to help support the students' art activities

The technology-based component of the professional development program, delivered through a blog-based platform, included:

- multimedia teacher training materials to help teachers integrate fine arts into the core curriculum (instructional materials, visual aides, instructional videos)

- a guided/moderated discussion format for reflection, sharing, and collaboration
- an ongoing technology-based learning community
- e-portfolio displays of student work
- Motivational components to encourage teachers to share and collaborate
- Tracking teacher engagement in the online training component

Specific objectives of the *Teachers Connect* program evaluated in this report are:

1. To create a high quality technology-based professional development program and learning community that supports the integration of fine arts into existing curricular objectives, especial literacy-based objectives
2. To provide teachers with strategies to integrate fine arts into the core curriculum, and the technological skills necessary to access and participate in the technology-based professional development program and learning community
3. To ensure that teachers access, share, participate, and collaborate in the technology-based learning community
4. Ultimately, the goals of this technology-based professional development program are to improve students':
 - a. knowledge of visual arts concepts and vocabulary
 - b. ability to meaningfully extend, refine, and use their knowledge of visual arts concepts
 - c. ability to engage more effectively in critical thinking/productive habits of mind;
 - d. attitudes and dispositions, including increased self-confidence with respect to discussing and creating visual arts

Evaluation Design

The evaluation plan for the *Teachers Connect* program was designed to determine the extent to which program goals utilize a multi-step process:

1. Outline operational objectives that correspond to overriding program goals
2. Reframe these objectives as evaluation questions
3. Identify measurable outcomes/performance measures that can be used to answer these evaluation questions
4. Find or develop appropriate instruments to use as measurement tools
5. Administer measurement tools to collect data
6. Analyze and interpret the data and draw conclusions

More specifically, the evaluation plan for *Teachers Connect* focused on assessing the effectiveness of the professional development program. The evaluation approach followed the Kirkpatrick model of evaluation (Kirkpatrick, Donald L. *Evaluating Training Programs: The Four Levels*, 2nd ed. San Francisco: Barrett-Koehler, 1998), which is standard for professional training and development programs, and integrates logic modeling (as an organizational tool for moving from conceptual objectives to developing indicators in order to measure results (<http://www.wkkf.org/Pubs/Tools/Evaluation/Pub3669.pdf>)). In the Kirkpatrick model, there are four levels of evaluation: (1) reaction (2) learning (3) behavior and (4) results. Level 1 evaluates the reaction of the participants to the technology-based professional development

program. Level 2 assesses the knowledge, skills, and abilities that the teachers gained by participating in the technology-based professional development program. Level 3 evaluates the behavior of the participants after the training and to see to what extent they participated in their learning community and to what extent they shared and collaborated. Ultimately, the effectiveness of a professional development program for teachers is measured by student success; level 4 evaluates how the technology-based program affected student-learning outcomes. The evaluation design for the *Teachers Connect* program included the integration of qualitative and quantitative data. Data collection included a combination of ongoing teacher feedback and surveys, annual surveys, focus groups, behavior/participation tracking (on-line), and student assessments (pre- and post-tests).

Evaluation Questions

The evaluation of *Teachers Connect: Distance Learning in the Arts* addressed and measured how effective the training program was at meeting the program goals and objectives outlined above. The program can be considered to be effective if teachers had a positive reaction to training and if they learned how to access and participate in a technology-based learning community. *Teachers Connect* was also considered effective if teacher behavior showed they accessed (in a repeated and ongoing fashion) the technology-based learning community, they participated and collaborated with other members, and if the technology-based professional development program translated into student learning gains. The evaluation questions were:

1. Did NMWA create a high quality technology-based professional development program and learning community to support the integration of fine arts into the curriculum?
2. Did the program provide teachers with the following: (a) strategies for integrating fine arts into the core curriculum, and (b) technological skills necessary to access and participate in a technology-based professional development program and learning community?
3. Did the program motivate teachers to access, participate in, and learn to share and collaborate in the technology-based learning community?
4. Did the results of the technology-based professional development improve students':
 - a. knowledge of visual arts concepts and vocabulary
 - b. ability to meaningfully extend, refine, and use their knowledge of visual arts concepts
 - c. ability to engage more effectively in critical thinking/productive habits of mind
 - d. attitudes and dispositions, including increased self-confidence with respect to discussing and creating visual arts

Performance Measures

Measurement Instruments

This section of the evaluation report details how each program objective was measured. Descriptions of the development of the visual arts achievement assessment tool; the structured writing tool, including descriptions of the piloting and rubric development processes; the student attitude and dispositions survey; and the teacher survey were provided in previous

reports. The table below, summarizes the performance measure(s) associated with each program objective.

Program Objectives and Corresponding Performance Measures

Program Objective	Performance Measure(s)
To create a high quality technology-based professional development program	Teacher surveys, focus groups
To provide teachers with the following: (1) strategies for integrating fine arts into the core curriculum; and (2) technological skills necessary to access and participate in a technology-based learning community	Teacher surveys, formative teacher feedback, participation counts (on teachers participating in the on-line training), focus groups
To ensure that teachers access, participate in, and learn to share and collaborate with the technology-based learning community	Participation counts, focus groups
To improve students' knowledge of visual arts concepts and vocabulary; ability to meaningfully extend, refine, and use their knowledge of visual art concepts, ability to engage more effectively in critical thinking/productive habits of mind; and attitudes and dispositions, including increased self-confidence with respect to discussing and creating visual arts	Pre- and post-program student achievement tests, teacher focus groups, classroom site visits, anecdotal records

Instrument Scoring

During the three years in which the program was implemented, completed tests were forwarded to the evaluator, Dr. Melissa Fein, to be hand scored. The essay items were scored using the rubric developed by the evaluation team: Dr. Robert Lissitz, Dr. Melissa Fein and Ms. Nancy Jakubowski. The essay grader, Ms. Nancy Jakubowski, holds a BA in English Literature, and an MA in Education and Human Development, with a major concentration in adult education, both from The George Washington University. Ms. Jakubowski has extensive professional as well as volunteer experience in the field of education. She had previous experience grading a similar written assessment for the National Museum of Women in the Arts *Art, Books, and Communities* program. In addition, she agreed to grade both the pre-tests and the post-tests over the three years the program was implemented. This reduced the concern of inter-rater reliability between pre-test and post-test results, and provided consistency in grading from year to year.

Data Collection Plan

The data collection plan includes a discussion of the sample selection, the timing of the data collection, and retention issues.

Sample Selection

In Albuquerque, Albuquerque Public Schools Fine Arts instructional manager Janet Kahn and art coordinator Denise Rudd worked with the *Teachers Connect* program staff to select participating schools and control group schools. In Pascagoula, curriculum specialists Jane Pickett, Ann Parish, and Director of Elementary Education, Belinda Dammen, worked with the *Teachers Connect* staff on program implementation details related to sample selection.

Experimental and Control Groups

Teachers Connect is specifically designed to serve the needs of at-risk students, and the schools selected to participate in the program reflect this priority. Art coordinators in the Albuquerque, New Mexico and Pascagoula, Mississippi public school districts began the selection process for participants for the 2007-2008 school year.

- In Albuquerque, the control schools were matched as closely as possible to the experimental schools by considering criteria such as percentage of students receiving free and reduced meals (FARMS). Most of the participating schools were “Title 1” programs.
- In Pascagoula, district administrators adopted the *Teachers Connect* program with great enthusiasm. The district is small, with eleven elementary schools with only two or three classes per grade. Teachers were warned that sharing program strategies during these experimental years with control group teachers could cause data contamination and that the program materials would be available to everyone after the evaluation process was completed. In the first year, only fourth grade teachers participated. During the second year, some fifth grade classroom teachers participated, as well. (Some teachers taught a cohort of students through both fourth and fifth grade.) The fifth grade curriculum and assessment focused more heavily on critical-thinking skills, and an additional structured writing assessment was developed to assess these student outcomes.

Data Collection

During each year of the program, pre-tests were administered in the fall, before program implementation, and post-tests were administered in March. March was selected so that the post-test would not overlap or compete with annual district and state testing. Ongoing evaluative site visits were conducted by the program director to support implementation of the technology-based training component. The evaluator conducted site visits in March/April of each program year, and a teacher survey was conducted at the completion of the academic

year. Participation in the technology-based professional development site was tracked on an ongoing basis.

Analytical Methodology

Several sets of data were analyzed for the *Teachers Connect* program evaluation: data from ongoing teacher surveys and feedback during the year, site visit observations, annual teacher surveys, online tracking of participation rates and collaboration and sharing, and student learning gains (the difference between pre-test and post-test scores of the program participants versus the control group).

Teacher surveys and feedback were used to measure teacher reactions to the program. The survey addressed teacher perceptions of the quality and usefulness of the program. It was used to identify any problems with accessing the technology-based professional development program and focused on how the problems were resolved. Teacher surveys, feedback, participation counts, and site visit results were used to evaluate what teachers learned about integrating fine arts into the core curriculum, as well as what they learned about accessing and participating in a technology-based learning community.

The *Teachers Connect* student outcomes achievement data analysis compares the growth in achievement scores of the program participants to the growth in achievement scores of non-participants (the control group). Growth in achievement was measured by the difference between the post-test and pre-test scores. Two areas of achievement have been measured: visual arts literacy and written expression related to visual arts concepts. The multiple-choice component of the instrument was used to measure visual arts literacy. The structured essay component of the instrument was used to measure written expression related to art concepts. The combined score of these two components of the instrument is referred to as the composite. Achievement growth or gains were analyzed for the multiple-choice component, the essay component, and the composite. Conventionally, analysis of variance (ANOVA) is used to compare the data on program participants and the control group. However, when data are nested (as in the case of students nested within classes, which are nested within schools) inferential validity of the ANOVA estimates can be compromised by threats of misestimated precision (underestimated standard errors) (Raudenbush and Bryk, 1988, p. 429). Hierarchical modeling is an analytic technique developed as a response to shortcomings in traditional/conventional statistical approaches that occur when applied to multilevel (nested) data. The *Teachers Connect* project demographics are different in the two regions; The *Teachers Connect* data have a hierarchical structure, therefore hierarchical linear modeling is the most appropriate method of data analysis to use to compare the achievement growth of program participants to the achievement growth of the control group.

Results

Teacher Site Visits 2010

Site visits included going to a variety of classrooms in both Albuquerque and Pascagoula and visiting both high implementing teachers and low implementing teachers. Discussions with many teachers at different levels of implementation were held as well.

Some of the following comments from the 2009/2010 site visits reinforced teacher comments that were contributed in previous years of the program during interviews and focus groups:

- The program serves children from low SES backgrounds well because they have a limited vocabulary and need a broader vocabulary.
- The program is motivating for some of the lower achieving students.
- The program reduces students' fear of writing.
- The bookmaking can be used as an assessment that is engaging and motivating for the students.

From the site visits, it was clear that the degree of 'buy-in' and implementation of the program varied from teacher to teacher, and student results reflected the degree of teacher buy-in. In classes in which teachers were engaged, the students maintained enthusiastic and engaged discussions, using art as the context for displaying critical thinking skills, specifically the visual thinking strategies that comprised a core piece of the program. There were some teachers who 'participated', but obviously did not 'buy-in.' They seemed to view the art activities as an 'add-on,' or a means of procuring high quality art supplies, rather than a vehicle for student engagement and academic growth. The students in these classes tended to focus on the 'fun' aspect of art and were not able to have as detailed and meaningful a discussion as in the classrooms where the teacher was more fully engaged in the program.

An additional discovery during the site visits: a few teachers, who seemed to be low-participators based on their level of online sharing and collaboration, actually had high buy-in; their low sharing and collaboration online was attributed to the fact that they were sharing and collaborating in-person with other teachers in their school who were also involved in the program.

Teacher Focus Groups & Interviews 2008 & 2009

Teachers indicated that the *Teachers Connect* program changed their level of engagement as a teacher for the better in the following ways:

- Affected the student/teacher relationship in positive ways
- Increased their ability to integrate art into their curriculum
- Provided them with new understanding of their students
- Made the learning process fun and exciting

Some of the teachers who were expected to continue with the program decided to retire. District personnel disclosed to NMWA staff that these teachers indicated in their exit interviews that they are choosing to retire rather than endure high stakes testing scripted lessons, and lack of appreciation for creativity in the teaching environment. Many of these teachers expressed an appreciation for the fact that the *Teachers Connect* program made the learning process fun and exciting. After the first year, NMWA added an extra teacher at each site to be sure that there were an adequate number of data sources going into Year 4 since no new teachers were added in the fourth year as is planned in Years 2 and 3.

Teacher comments indicated involvement in the arts affected students' level of engagement by fostering:

- Students' ability to extend concepts and skills to other curricular areas
- Students' use of the art vocabulary, meaningful expression, and participation among those less apt to participate since the students perceived the 'no wrong answers' venue as a safe outlet for expressing ideas
- Cooperation among students and improved listening to others' ideas
- A different type of student/teacher engagement, enabling connections that might not otherwise have occurred

Teachers overwhelmingly perceived that the program improved students' attitudes and dispositions with respect to self-confidence in both discussing and creating art.

Teacher Survey Results 2008-2010

The majority of teachers agreed or strongly agreed that:

- The program contributes to the improvement of student knowledge of visual arts concepts and vocabulary.
- The program contributes to the student ability to meaningfully extend, refine and use knowledge of visual arts concepts.
- The program contributes to student ability to engage in critical thinking/productive habits of mind.
- The program contributes to the improvement of student attitudes and dispositions,
- The Summer Institute program enables integrating visual arts into their teaching in a way that supports their district program objectives.
- The distance learning sessions enable the implementation of the visual arts into their teaching in a way that supports district objectives.
- The Summer Institute supports the implementation of the visual arts into their teaching.

Teacher Behavior: Participation in the Technology-Based Learning Community

In Pascagoula, there were district-imposed safeguards put in place to ensure that teachers could not use computers inappropriately and so the vast majority of websites were blocked. Even if a teacher was able to access a specific website, they could not access links from those sites. Teachers felt frustrated by this lack of trust, which presented a barrier to full participation in *Teachers Connect* as well as other educational sites. This gives some insight into teacher attitudes about using technology as well as the lower than expected skill level of these teachers. Although this problem was not anticipated, the NMWA director identified some work-arounds and worked with district technology officials. In addition, NMWA added a technology workshop to the Summer Institute to further the use of professional development technology tools, and created a short video as a training mechanism for future use. Emails were sent to every participant on Sunday evening to tell them about new postings on the training website, which enhanced the number of hits each week. The Summer Institute of 2008 included a component of technology training to ensure that more teachers would be able to access the training site. Seventy-six percent of the teachers participating in the program during the 2009/2010 school year actively participated in the technology-based learning community by posting and either sharing or collaborating information.

Implementation: The following comments were seen consistently in the teacher comments to the survey:

- For teachers who did not fully implement all components of the curriculum, the main reason cited was time.
- Teacher engagement was improved in the following ways:
 - Improved teacher questioning techniques related to critical thinking
 - Increased confidence in art competency
 - Teaching competency gains transfer to areas outside the arts
 - Using visual thinking strategies allowed me to run class and assess differently
 - It improves student engagement [which improves teacher engagement]
- Students become skilled in looking for details and using critical thinking across the curriculum, not just in art

Results: Student Achievement Data

Student outcomes, resulting from the professional development program, were based on a comparison of the growth in achievement scores in the area of visual arts concepts as well as written expression related to visual arts. Growth was computed by subtracting the initial pre-test scores from the final post-test scores, and the growth of the students in participating teachers' classrooms was compared to the growth in control classes to see if gains of program participants were significantly greater than nonparticipants.

On the fourth-grade multiple choice and essay tests the program students had significantly higher gains than the control students. The means for the gains, along with the sample sizes and standard deviations on the multiple choice test, are presented in the table below. It should

be noted that during year one it was discovered that the post-test was more difficult than the pre-test, which account for the negative gains (In year one the loss of the program students was significantly less than the loss of the controls). The fourth grade multiple-choice tests had a maximum of 30 points, and the essay tests had a maximum of 10 points. The fifth grade essay tests also had a maximum of 10 points. The statistical models and output related to these models have all been submitted in the annual reports.

Gain Scores on Fourth Grade Multiple Choice Test

Group		Multiple-choice gain: 2007/2008	Multiple-choice gain 2008/2009	Multiple-choice gain 2009/2010
Control	Mean	1.12	1.02	2.16
	Sample size	195	172	166
	Std. deviation	4.16	3.93	4.05
Program	Mean	3.89	4.34	4.91
	Sample size	236	351	277
	Std. deviation	4.88	6.82	4.58
Total	Mean	2.63	3.25	3.88
	Sample size	431	523	443
	Std. deviation	4.77	6.22	4.58

Gain Scores on Fourth Grade Essay Test

Group		Essay gain 2007/2008	Essay gain 2008/2009	Essay gain 2009/2010
Control	Mean	-.93	0.04	0.60
	Sample size	285	256	235
	Std. deviation	1.02	0.73	0.86
Program	Mean	-.42	1.06	0.88
	Sample size	295	457	353
	Std. deviation	1.20	1.82	1.05
Total	Mean	-.67	0.70	0.77
	Sample size	580	713	588
	Std. deviation	1.14	1.60	0.99

Gain Scores on Fifth Grade Essay Test

Group		Essay gain 2008/2009	Essay gain 2009/2010
Control	Mean	1.76	0.44
	Sample size	54	43
	Std. deviation	1.95	1.59
Program	Mean	4.53	4.65
	Sample size	166	140
	Std. deviation	3.56	4.22
Total	Mean	3.85	3.66
	Sample size	220	183
	Std. deviation	3.45	4.17

Fifth grade was added during the second year of the program

Summary

The National Museum of Women in the Arts' *Teachers Connect* program is a visual arts and literacy program funded through a competitive grant awarded by the Office of Innovation and Improvement, U.S. Department of Education. The overriding goal of the *Teachers Connect* program is to train teachers to incorporate visual arts into the core curriculum. The *Teachers Connect* program objectives were designed to dovetail with educational objectives in the participating school districts, and the participating teachers were provided with training workshops along with art materials designed to enable them to support the program objectives, including resources for a museum visit.

As is required of federally supported programs, the learning gains of program participants are tracked and compared to those of non-participants. Learning gains are measured as the difference between pre-test and post-test scores on an assessment instrument tailored to reflect the *Teachers Connect* program goals and objectives and these score differences were quantitatively analyzed using multilevel analysis. Two school districts agreed to participate in the *Teachers Connect* program: Albuquerque, New Mexico and Pascagoula, Mississippi. Both school districts have cooperated in providing mostly Title I participant schools.

NMWA created a high quality, technology-based professional development program and learning community to support the integration of fine arts into the curriculum. The program provided teachers with both strategies for integrating fine arts into the core curriculum, and the technological skills necessary to access and participate in a technology-based professional development program and learning community. The program motivated teachers to varying degrees to access, participate in, and learn to share and collaborate in the technology-based learning community. The program did appear to address students' knowledge of visual arts concepts and vocabulary, their ability to meaningfully extend, refine, and use their knowledge of visual art concepts, their ability to engage more effectively in critical thinking/productive habits of mind, and their attitudes and dispositions, including increased self-confidence with respect to discussing and creating visual arts.

Specific overall findings for the *Teacher's Connect* program include:

- The students in the classrooms of participating *Teachers Connect* teachers outperformed students in the control groups on the visual arts concepts test.
- The students in the classrooms of participating *Teachers Connect* teachers outperformed students in the control groups on the written expression test that covered meaningfully extending, refining, and using knowledge of visual art concepts.
- The majority of *Teachers Connect* teachers perceived that students' ability to discuss art improved in the following ways: ability to use art vocabulary, recognition of art forms, recognition of the elements of art, ability to use visual arts concepts meaningfully, and engagement in critical thinking.
- The *Teachers Connect: Distance Learning in the Arts* program was appropriate, effective, and well implemented, as judged by participating teachers.
 - The majority of *Teachers Connect* teachers had a positive reaction to the program and perceived that their training enabled them to implement visual arts into their

- classrooms through literacy exploration, thinking routines (cognitive strategies), media exploration, artist book making, and artwork exploration.
- The main barriers to full implementation occurred during the first year and were related to district technology constraints, particularly in Pascagoula, limited technology skills, and time.
 - NMWA addressed the district technology constraints with district personnel and identified ways to access the distance learning sessions.
 - Lack of teacher technology skills were addressed in the 2008 Summer Institute.
 - Lack of time was also addressed in the 2008 Summer Institute by providing teachers with ideas for integrating the program into their existing curriculum responsibilities.
 - The majority of teachers did some sharing and/or collaboration online.
 - The level of sharing and collaboration that was done online increased after the first year.
 - Online sharing and collaboration understated teacher engagement in the program because a small cadre of teachers were sharing and collaborating in-person.
 - Classrooms of teachers with 'buy-in' (higher implementers) exhibited more meaningful discussions than classrooms of teachers who did not 'buy-in.'