

**Evaluation of the Second Year of the
ARTS FIRST Windward Research Project**

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Contents

CHAPTER I: INTRODUCTION	1
Project Purpose	1
Evaluation design and questions	2
Participating Schools	3
Description of the ARTS FIRST Program	3
Overview	3
Professional Development	4
Evolution of the professional development	5
CHAPTER II: METHODS	8
Evaluation Questions 1 and 2	8
Student Achievement	8
School Attitude Survey	9
Preliminary analyses about the generalizability of the results	9
Student Interest in the Arts Questionnaire	11
Explanation of the Analyses of the Attitude and Arts-Interest Instruments	12
Overview of ANCOVA	12
Conducting ANCOVAs	13
The nested feature of the ANCOVAs	14
More issues of statistical power	15
Student Behavior	16
Evaluation Question 3	16
Students Exposure to the Arts: Parent Survey	16
Evaluation Question 4	17
Attitudes Toward Teaching with the Arts Survey	17
Project Teacher Interviews and Focus Groups	17
Teacher Observations	18
Evaluation Questions 5–8	18
Professional Development Quality Survey	18
Weekly Teacher Log	19
Project Student Focus Groups	19
Project Teacher Interviews and Focus Groups	20

Evaluation Question 9	20
Evaluation Question 10	20
Evaluation Question 11	20
Project and Control Principal Interviews	20
School Context Survey	21
CHAPTER III: RESULTS	22
Student Attitudes and Interest in the Arts (Evaluation Questions 1 and 2)	22
Results on the School Attitude Survey	22
Grade 3 results	22
Grade 4 results	25
Results on the Student Interest in the Arts Questionnaire	25
Grade 3 results	25
Grade 4 results	25
Teacher Attitudes and Skills (Evaluation Question 4)	28
Results on the Attitudes Toward Teaching with the Arts Survey	28
Project Teacher Interview and Focus Group Results	30
Mid-Year Interview Results	30
Opinions about the professional development	30
Issues affecting use of the arts in the classroom	30
Teachers' observations about the program's effects	31
End-of-the-Year Focus Group Results	31
Teachers' use of the arts strategies	31
Opinions about program feasibility	32
Opinions about program benefits	32
Teachers' and Students' Opinions About the Program and Program Implementation (Evaluation Questions 5–8)	33
Professional Development Quality Survey	33
Responses to open-ended questions	33
Weekly Teacher Log Results	35
Project Student Focus Group Results	38
Effects of School Context (Evaluation Question 11)	38
Project and Control Principal Interview Results	38
School Context Survey Results	39

CHAPTER IV: DISCUSSION	41
What Can We Conclude About Teachers’ Opinions About the Program?	41
What Can We Conclude About Students’ Opinions About the Program?	43
What Can We Conclude about the Level of Implementation of the Arts Strategies in the Classroom?	43
What Can We Conclude About the Effects of the Program on Students?	45
Student Attitudes Toward School	45
Student Interest in Artistic Activities	46
What School Characteristics Might Influence the Comparison Between Project and Control Schools?	46
REFERENCES	47
APPENDIX A: Description of Year 2 Professional Development Workshops for the ARTS FIRST Windward Research Project	48
APPENDIX B: The Reliability and Validity of the Data Collected with Three Quantitative Instruments of the Study	74
APPENDIX C: Transcriptions of Qualitative Data	83

CHAPTER I INTRODUCTION

Under a Memorandum of Agreement (MOA) with Hawai'i Alliance for Arts Education (HAAE) dated December 31, 2003, Curriculum Research & Development Group (CRDG), University of Hawai'i at Mānoa, has provided formative and summative evaluation services to the second year of the ARTS FIRST Windward Research Project (AFWRP), a three-year endeavor funded by the U.S. Department of Education (USDOE) Model Development and Dissemination Grant Program (MDDGP). HAAE is implementing the project in three randomly-assigned public schools on the island of O'ahu. A group of three randomly assigned control schools is also being studied. The intended audiences of the report are HAAE, the Hawai'i Department of Education (HDOE), whose schools participated in the project, and the USDOE.

In this report, we present four chapters that include

- 1) the background of the study, an overview of the revisions made to ARTS FIRST program in School Year (SY) 2004–05, and an overview of the evaluation questions addressed in the report (Chapter I);
- 2) an explanation of the methods of the study (Chapter II);
- 3) the findings of the study (Chapter III); and
- 4) a discussion of the results and their implication for the ARTS FIRST program and the research project (Chapter IV).

Project Purpose

The ARTS FIRST program is a component of a six-year strategic plan for arts education designed for Grades K–5 students and teachers. AFWRP focuses on a group of students and teachers in Grades 3–5. In SY 2003–04, the project provided services to Grade 3 at the three project schools. In SY 2004–05, the focus of this report, the project provided services to Grades 3 and 4; in SY 2005–06, the project will provide services to Grades 4 and 5.

There were three primary goals of the AFWRP given in the original project proposal to the USDOE:

- 1) To show significant improvements in student performance (particularly reading comprehension) and positive attitudes through integrating high-quality, standards-based arts into academic

instruction.

- 2) To improve teachers' instruction by engaging students more effectively.
- 3) To encourage positive practices and creativity in teaching and learning, to spark new interest in learning by both teachers and students, and to observe and document evidence of changes in teaching pedagogy.

Evaluation design and questions. Using a pre/post control design, this evaluation report addresses 11 evaluation questions. Some of these questions focus on the extent to which ARTS FIRST materials and methods have merit and worth, as shown by changes in student achievement, attitudes toward school, behavior, and so forth. Others address the implementation of the program. Finally, some questions focus on the characteristics of the project, the teachers, the students, the schools, or the communities that might affect project outcomes.

The evaluation questions are:

- 1) To what extent do project students show improvements in reading and mathematics achievement, attitudes toward school, interest in artistic activities, and behavior?
- 2) To what extent are changes in project students' achievement, attitudes toward school, interest in (and prior exposure to) artistic activities, and behavior different from changes in students at the control schools?
- 3) What is the relationship between (a) students' characteristics such as gender, interest in (and prior exposure to) artistic activities, and (b) students' improvements in achievement and their attitudes toward school?
- 4) What changes are shown in teachers' skills in implementing the project and their attitudes toward the arts in the classroom?
- 5) Which activities and aspects of the project are received most favorably by the students and which are received least favorably?
- 6) Which activities and aspects of the project are received most favorably by the teachers and which are received least favorably?
- 7) Which activities and aspects of the project are most fully implemented and which are least fully implemented?
- 8) How might the project activities be improved?

- 9) To what extent does the project have unintended consequences?
- 10) To what extent is the project sustainable over time?
- 11) What aspects of school context, if any, effect the findings?

Participating Schools

The schools participating in the project are in the HDOE's Windward District, a sub-district of the statewide Hawai'i school district, which volunteered to provide schools for the project. The project and control schools are funded by Title I. At the beginning of the first year of the project, the six volunteer schools were matched on ethnic distribution (with emphasis on Hawaiian and part-Hawaiian ethnicity), school size, socio-economic status (defined as percentage of students receiving free or reduced-price school lunches), and achievement on the 2001–02 Hawai'i State Assessment (HSA). They then were randomly assigned within pairs to project and control groups. The three project schools are Keolu Elementary School, Lā'ie Elementary School, and Benjamin Parker Elementary School, and the three control schools are Ka'a'awa Elementary School, Kahuku Elementary School, and He'eia Elementary School.

In Table 1, we show the numbers of participating students and teachers at the six schools in SY 2004–05. As seen in the table, the numbers of project and control teachers participating in the project in SY 2004–05 were 13 and 14, respectively; the corresponding numbers of students were 282 and 327. At Lā'ie Elementary, one fourth-grade teacher chose not to participate this year.

Description of the ARTS FIRST Program

Overview

AFWRP is a project to implement the *ARTS FIRST Essential Arts Toolkit for K–5 Classroom Teachers* (Hawai'i Alliance for Arts Education, 2003). The toolkit was developed as a supplement to the HDOE's Content and Performance Standards II (HCPSII) for fine arts (Hawai'i Department of Education, 1999) in response to ARTS FIRST, a six-year strategic plan for arts education developed by a legislatively mandated partnership. The Arts Toolkit focuses on what is believed to be the most essential arts content at each grade level and is aligned with the HDOE's Hawai'i Content and Performance Standards II (HCPS II), the Grade Cluster Benchmarks, and Grade Level Performance Indicators (GLPI). The toolkit offers suggested classroom assessment tasks and

Table 1
Number of Participating Grade 3 and Grade 4 Teachers and Students in Year 2^a

Schools	No. of Grade 3 students	No. of Grade 3 teachers	No. of Grade 4 students	No. of Grade 4 teachers	Total no. of students	Total no. of teachers
<i>Project:</i>						
Keolu	28	1	32	1	60	2
Lā'ie	78	4	44	2	122	6
Ben Parker	64	3	36	2	100	5
Project total	170	8	112	5	282	13
<i>Control:</i>						
Ka'a'awa	14	1	27	1	41	2
Kahuku	62	3	85	3	147	6
He'eia	64	3	75	3	139	6
Control total	140	7	187	7	327	14
Grand total	310	15	299	12	609	27

^a Data used in this table give the number of students and teachers at the beginning of SY 2004–05, which was obtained from class rosters.

suggested instruction strategies and ideas for teaching the arts. It provides a framework to connect key arts concepts with other academic subjects such as reading and mathematics in Grades K–5. It is the intent of the *Toolkit* to enrich teachers' knowledge in the arts by focusing on the most essential arts content and to assist them in linking essential arts learning to other classroom instruction. The toolkit addresses teachers' lack of knowledge and preparation time for teaching the performing and visual arts effectively in the classroom.

Professional Development

The core of AFWRP is a series of group professional development institutes and, at each of the participating project schools, in-class residency/mentoring sessions that are conducted by professional resident artists. The full-day professional development institutes are designed to

introduce the project teachers to the various strategies for integrating the arts into basic skills instruction and to provide opportunities for discussion and reciprocal feedback. A total of six full-day sessions, attended by two members of the evaluation team, were held during the school year. A full account of the full-day professional development institutes for SY 2004–05, based on the observations of a university-based arts educator, is presented in Appendix A. It is intended as an archival record of the training that will be useful for documenting the project and for helping the project team make revisions, if necessary. The interaction between the classroom teachers and artist mentors during the in-class mentoring sessions is intended to give teachers opportunities to observe the modeling and to practice using the elements and principles of the various art forms, presented in the full-day sessions, in classroom instruction under the mentors' supervision. Each project teacher received a minimum of 20 hours of in-class professional development during SY 2004–05 (at least five mentoring sessions per teacher).

Evolution of the professional development. In SY 2003–04 and the first half of SY 2004–05, the purpose of the professional development and in-class mentoring sessions was to introduce and model grade-level, art-specific strategies to the project teachers. A total of 13 drama, dance, and music strategies were introduced to the teachers. In Table 2, we list the strategies that were introduced to the project teachers. For a complete description of these strategies, see Appendix A in the 2003–04 evaluation report (Brandon, Lawton, & Krohn-Ching, 2004), as well as Appendix A at the end of this report. Visual arts strategies will be introduced in SY 2005–06.

At the beginning of the evaluation study, the evaluation team considered AFWRP to be a well-formed, tested project; however, this has not proven to be the case. The arts strategies were significantly revised in SY 2004–05: As a result of the project team's experience in SY 2004–05, and in part as a result of the formative evaluation data that the evaluation team presented during the year, the project team began to develop underlying arts strategies that could be used across all the art forms. The strategies are currently being designed to bring a uniform structure to each of the art forms. The development of these strategies was founded on the work of *Sparks of Genius: The 13 Thinking Tools of the World's Most Creative People* (Root-Bernstein & Root-Bernstein, 1999). The three underlying strategies now used in each of the art forms that are addressed in AFWRP (drama, music, dance, and the visual arts) are observing, patterning, and representing. As part of the

Table 2
 The 13 Strategies and the Corresponding Art Forms
 Developed Over a Year and a Half of the AFWRP.

Art strategy	Art form
Auto-image	Drama
Shaping	Dance
Tableau	Drama
Thought track	Drama
Echoing	Music
Pantomime	Drama
Patterning	Music
Mirroring	Dance
Dividing space and time	Music
Focusing	Dance
Scene-building	Drama
Improvisation	Drama
Symbolic representation	Drama

development of the three primary strategies, the original 13 strategies that were implemented in SYs 2003–04 and 2004–05 are being modified and consolidated into one of the three strategies. At the time of this report the development team is still finalizing the structure of the three strategies. The final program strategy model will be presented and discussed in the final evaluation report at the end of the third year of the project.

In Table 3, we provide a brief description of each of the three strategies and how they are defined for each of the art forms. The application of the new strategies used in each of the art forms are intended to manage and build community in the classroom; integrate the arts to teach reading, writing, and mathematics; and teach how to use the arts to assess student learning.

Table 3
 Strategy Overview for the Three Primary Strategies Being Developed for the AFWRP

Strategy	Art Form		
	Drama	Dance/music	Visual Arts
Observing	Focusing, empathizing, and using multi-sensory awareness (“muscle memory” and “emotional memory”).	Focusing, listening, and using “muscle memory” and kinesthetic awareness.	Focusing on details, imagining, and visualizing.
Patterning	Sequencing, story building, and structuring using beginning, middle, and end.	Sequencing, arranging, organizing, and structuring using beginning, middle, and end.	Seeing relationships, sequencing, repeating, and arranging and organizing.
Representing	Interpreting and representing ideas through gestures and words.	Shaping, interpreting, and expressing ideas through movement and sound.	Replicating, interpreting, symbolizing, and expressing ideas through a variety of media.

CHAPTER II METHODS

In this chapter, which is organized by the evaluation questions,¹ we provide a brief description of the study's methods and instruments. For the reader seeking copies of the data collection instruments or technical information about them, see the appendix of the 2003–04 evaluation report (Brandon, Lawton, & Krohn-Ching, 2004).

As we show in this chapter, data addressing some of the evaluation questions (or parts thereof) are not summarized in this report because they are currently unavailable from the public schools. They will be summarized in an addendum to this report. Data for some other evaluation questions are not reported because instruments are being developed for use in the evaluation next year. Furthermore, data for some of the evaluation questions will be analyzed only in the final year of the project.

Evaluation Questions 1 and 2

The first evaluation question addresses the extent to which students show improvements in reading and mathematics achievement, attitudes toward school, interest in artistic activities, and behavior. The second evaluation question addresses the extent to which these changes differ among project and control schools. These questions are designed to answer an important goal of the project, as reflected in the MGDDP Request for Proposals, which is to show significant improvement in student performance (particularly reading comprehension), behavior, and positive attitudes.

Student Achievement

To address student achievement, we will obtain students' scores on the HSA, which is administered statewide in the spring of each school year by the HDOE in Grades 3, 5, 8 and 10. In Appendix B, Section 1, information about the assessment's scoring procedures, reliability, and other psychometric properties are presented. Currently, the scores for SY 2004–05 are not available from the HDOE. We will submit an addendum to this report showing cross sectional trends in mean reading and mathematics scores for Grades 3 and 5 when the scores become available soon. At the end of the project we will compare the project and comparison schools' 2005–06 fifth-grade scores, adjusted for baseline third-grade scores.

School Attitude Survey

This year we assessed students' attitudes toward school with the School Attitude Survey, which is a revised version of the School Attitude Assessment Survey–Revised (SAAS–R) (McCoach & Siegle, 2003).¹ We presented information supporting the validity of the data collected with the instrument in last year's report (Brandon, Lawton, & Krohn-Ching, 2004); this information included a discussion of the procedures for developing the instrument (evidence for content-related validity) and the results of factor analyses (evidence for construct validity). We also presented internal-consistency reliability findings. For this year's report, we add the results of test-retest reliability analyses for the School Attitude Survey; they are presented in Appendix B. For these analyses, the instrument was administered twice (on a Friday and again on the following Monday) in the spring of 2005 to 39 students in Grades 2–5 at the University of Hawai'i's Education Laboratory School (ELS). The correlation between pretest and posttest total ratings was .89 for all grades combined—a very satisfactory result suggesting that children's answers change very little when they are given the instrument twice. Grade 4 showed the highest reliability coefficient (.98) and Grade 2 showed the lowest (.79).

We administered the survey to 139 project and 132 control school third-grade students and 101 project and 165 control school fourth-grade students in the spring of SY 2004–05. In SY 2003–04, this survey was administered in the spring to 105 project and 122 control school second-grade students and 124 project and 182 control school third-grade students; these serve as pretest ratings for the current study. Our two analyses—one for each grade—use data collected in the spring of each year because we believe that the time of the year might affect students' attitudes. A nested analysis of covariance (ANCOVA), with the Grade 2 Spring 2004 mean attitude ratings as a covariate, was conducted to examine differences between project and control group third-grade students' attitudes toward school in Spring 2005. The same analysis was conducted, with Grade 3 Spring 2004 attitude ratings as the covariate, on Grade 4 students' attitudes toward school.

Preliminary analyses about the generalizability of the results to the students who did not complete the pre-, post-, or both. For both the third-grade results and the fourth-grade results, we

¹Students showed very high mean ratings on a 3-point version of the attitudes instrument last year. In an effort to obtain more variability in the responses this year, we changed the instrument to a 4-point scale.

conducted a preliminary analysis before we analyzed the attitude-survey differences between project and control groups. This analysis was of the differences on the attitude survey between the group of students who took both the pre- and the post- and (a) those who did not take the pre- and (b) those who did not take the post-. The purpose of this analysis was to see, for each grade, if our attitude-survey results for the project group who took both the pre- and the post- can be generalized to the students in that group who did not take it one time or the other, and to see if our results for the control group who took both the pre- and the post- can be generalized to the students in that group who took only the pre- or the post-. The results on the group of students who completed both the pre- and the post- can be generalized to all students who took the instrument only once. This is justifiable to the extent that (a) the proportions of students who did not take both the pre- and the post- are small and (b) that the differences in attitude survey mean ratings between those who took it twice and those who took it once are small.

We conducted a total of eight analyses (two grades \times two project “conditions” [project or control] \times two survey administrations). Across all the comparisons, an average of 16.25 students took only one administration of the instrument. Of the comparisons between mean attitude survey ratings, only one was statistically significant at the .05 level on an analysis of variance (ANOVA). This comparison was between the 13 third-grade control-group students who did not take the pretest and the 122 control-group students who took both administrations of the instrument. Given that this comparison was based on only 13 third-grade control-group students, and given that no other statistically significant differences were found, we conclude that the attitude survey results are generalizable to the group of third-graders and fourth-graders in the project and control groups who completed the instrument twice in SY 2004–05.

The descriptive statistics for the third- and fourth-grade students and the nested ANCOVA results are presented in Chapter III. The nested ANCOVA method of analysis is appropriate for our study because of the nature of the design in the study, in which schools are grouped (“nested”) within the treatment group or within the control group. As we state in the next section, we also used this analysis to examine the differences between project and control groups on the Student Interest in the Arts Questionnaire. We present a discussion of our ANCOVA analyses for both instruments in greater detail, and present our rationales for conducting them, after the next section. We also discuss

some other analyses, appropriate for our nested design, that supplemented the nested ANCOVAs.

Student Interest in the Arts Questionnaire

The Student Interest in the Arts Questionnaire was developed and pilot tested during the first year of the project (Brandon, Lawton, & Krohn-Ching, 2004). The same types of validity and reliability evidence that was described above for the attitude survey was presented for the arts-interest questionnaire in last year's report (Brandon, Lawton, & Krohn-Ching, 2004). The results of test-retest reliability analyses for the arts interest instrument are presented in Appendix B of this report. Test-retest data were collected at the same times that they were collected for the attitude survey and in the same ELS grades. The correlation coefficient between pretest and posttest total ratings was .93 for all grades combined—like the results for the attitudes questionnaire, a most satisfactory result. Grade 4 showed the highest correlation (.97) and Grade 3 showed the lowest correlation (.89).

The 26-item questionnaire was administered to 130 project and 99 control school third-grade students and 96 project and 163 control school fourth-grade students in the fall (pretest) of SY 2004–05. The questionnaire was then administered in the spring (posttest) of SY 2004–05 to 139 project and 132 control school third-grade students and 101 project and 165 control school fourth-grade students. The questionnaire was designed to assess students' interest in drama, music, dance, and the visual arts. A nested ANCOVA, with Fall 2004 ratings as the covariate, was used to analyze the effects of the program on students' Spring 2005 ratings of their interest in the arts. Unlike the attitudes instrument, we compared mean ratings between fall and spring because we do not believe that students' interest in the arts is affected by the time of year at which data are collected. The results of the analyses are presented in Chapter III.

For both the third-grade results and the fourth-grade results, we conducted two preliminary analyses before we analyzed the interest in the arts questionnaire differences between project and control groups. The first analysis was the same as the preliminary analysis that we conducted on the attitudes survey results. The average number of students who took only one administration of the instrument was 8.75; in only one instance did more than 13 students not take both. We found that only one of the eight comparisons between mean ratings on the attitude survey was statistically significant at the .05 level. This comparison was between the 26 third-grade control-group students

who did not take the pretest and the 107 control-group students who took both the pre- and the post-. (This is the same cohort of students for whom differences were found in the analysis for the student attitude survey.) We conclude that, except for this instance, our results can be generalized to all the third-grade and fourth-grade project and control group students in SY 2004–05 who took only one administration of the instrument.

The second of the preliminary analyses was a comparison of (a) the group of students who completed the questionnaire in the fall, in the spring, or both and (b) the group who took it on neither occasion. The purpose of this analysis was to identify differences in the ethnic composition of students who took it at least once (i.e., those who were compared in the first preliminary analysis) and the students who did not take the instrument at all. We compared the students on ethnic composition because this was the best characteristic that we had available for examining whether the two groups were notably different. To the extent that the two groups are similar, we can be fairly confident that our results generalize to all students in Grades 3 and 4 in the schools. To examine the differences among groups, we conducted chi-square analyses.

The results of the second preliminary analysis show that the ethnic distribution of the students who took neither the pre- nor the post- compared to that of the students who took at least one administration of the instrument did not show statistically significant differences for the Grade 3 project group ($F = 6.42, df = 12, p = .89$), Grade 3 control group ($F = 11.07, df = 13, p = .61$), Grade 4 project group ($F = 15.97, df = 9, p = .07$), or the Grade 4 control group ($F = 13.86, df = 11, p = .24$). Because some of the values in the cells were quite low, a chi-square analysis may not have been an appropriate measure of differences between the students within each of these four groups; therefore we visually compared the results for those cells with the highest numbers of students. We found minimal differences in the ethnic distributions of the group of students who did not complete the questionnaire at all compared to the group of students who completed the questionnaire at least once. Therefore, we can be confident that the students for whom we have no data on interest in the arts are comparable to those for whom we do have data.

Explanation of the Analyses of the Attitude and Arts-Interest Instruments

Overview of ANCOVA. The ANCOVAs that we conducted of the two student instruments require further description and discussion. Not only is ANCOVA a difficult type of analysis for some

lay readers to comprehend, but the “nested” nature of the study’s design, with schools randomly assigned to project and control groups, complicates the analyses further. In this section, we describe how we conducted ANCOVAs of the student results, describe the implications for our analyses of the nested design, and discuss an issue of statistical power (i.e., the likelihood that statistical tests will reflect differences between project and control groups). The discussion also applies to the analysis of the Attitudes Toward Teaching with the Arts Survey, which is discussed under Evaluation Question 4, and the School Context Survey, which is discussed under Evaluation Question 11.

Conducting ANCOVAs. We used nested analysis of covariance (ANCOVA) methods for conducting statistical tests of the differences between mean project and control group ratings on the Student Attitude Survey and on the Interest in the Arts Questionnaire. The purpose of conducting an ANCOVA of the attitude data is to compare project and control school students’ Spring 2005 mean attitude ratings (the posttest) after “equalizing” the two groups on their attitudes one year earlier (the pretest). The purpose is the same for the ANCOVA of the students’ Fall 2004 arts-interest (pretest) ratings and their Spring 2005 (posttest) ratings. The pretests are called *covariates*. The ANCOVA method allows us to examine differences between mean posttest ratings after the baseline differences between the two groups’ pretest ratings have been “removed” from the data. This method is preferable to examining pre-post gain scores, because gain scores are less reliable.

In addition to adjusting for pretest ratings, ANCOVA can be used to remove the effects of other differences between the project and control groups that might have existed when the schools were randomly assigned. These other effects occur in experiments in which intact groups, such as schools, are assigned to the treatment and control conditions, because this design does not remove extraneous factors affecting the ratings. That is, the members of the groups have characteristics in common that are not adjusted for in the random assignment in the way that they would be adjusted for if the group members, not the groups, had been randomly assigned. In our case, ANCOVA can be used to “equalize” the project and control groups on, say, differences in reading achievement that might be expected to affect the outcomes of the project. Reading scores are an important characteristic (i.e., covariate) to examine because they are highly correlated with student socio-economic status, which is known to affect outcomes reflecting student performance in school. We examined whether we should use reading scores as an additional covariate in the analysis of the attitude ratings or in the

separate analysis of the interest in arts ratings, but found that they did not assist in either analysis. (In statistical terminology, reading achievement accounted for a very small portion of the variance in posttest ratings.) Covariates should not be included in analyses unless they are pretests or contribute to the statistical model mathematically; because reading achievement met neither criterion, we did not include reading scores in our ANCOVAs.

ANCOVAs should only be used when it can be shown that the covariates meet *homogeneity-of-slope* assumptions. For all the ANCOVAs reported in Chapter III, we conducted analyses evaluating the homogeneity-of-slopes assumption for the covariates and found that tests of all the covariates satisfied this assumption.

The nested feature of the ANCOVAs. The type of ANCOVA that we conducted is called a *nested* ANCOVA. The nested feature of the ANCOVAs is appropriate because of the study's design, in which schools, not students, were randomly assigned to project or control groups—a feature that affects the statistical tests. (Specifically, the study's design affects the standard errors that are used when calculating statistical significance.) Nested designs in education research are often called *hierarchical* or *multilevel* designs. We conducted nested ANCOVAs using the software procedure, SAS PROC MIXED. This procedure is appropriate for analyzing data using the General Linear Mixed Model. (PROC MIXED is also appropriate for studies in which there are *unbalanced cells* in the statistical design—that is, differing numbers of people in the various groups being studied—in our case, differing numbers of students and teachers at the schools participating in the study.)

The nested ANCOVA method helps diminish the likelihood that the statistical tests of a study in which schools are randomly assigned to project and control groups will erroneously show significant differences among the groups when, in reality, there are none. This erroneous result is called a *Type I error*. The nested ANCOVA method is more likely than non-nested methods to avoid this error. However, the nested feature simultaneously can have the undesirable effect of increasing the likelihood of erroneously showing no statistically significant differences among groups when the differences actually exist. This is called a *Type II error*. A Type II error can mean that the experiment has low statistical power—a condition that can result in not showing the effects of a program when there actually are effects worthy of reporting.

In Chapter III, we show that the nested ANCOVAs did not show differences among groups on

the attitudes instrument or the arts-interest instrument. Naturally, we asked whether this might be due to Type II error. To help address this issue, we conducted ANCOVAs that did not address the nested nature of the data. The alternative analyses were done with the software procedure, SAS PROC GLM, which analyzes data using the General Linear Model. We conducted analyses using this alternative method because the likelihood of Type I and Type II errors when analyzing nested data using PROC GLM is the opposite of the likelihood of these errors when analyzing nested data using PROC MIXED. PROC GLM for nested data is prone to showing Type I errors. That is, the procedure might show significant effects when there are no actual important effects. We reasoned that if the non-nested ANCOVA did *not* show significant differences between groups, there would be less reason to believe that the nested ANCOVA was subject to Type II error (i.e., not producing statistics that reflect real differences between groups). That is, if the non-nested analysis did not show significant effects, even when it was “predisposed” to show these effects erroneously because of the design of the experiment, we could increase our confidence in the validity of the findings of non-significant results in the nested analysis.

In none of the four analyses of the attitudes data or the interest-in-the-arts data did the results of the PROC GLM analyses contradict the results of the PROC MIXED (nested) analyses. These results suggest that we can have confidence in the PROC MIXED results, despite the tendency of the method to commit a Type I error with a small number of nested groups. We do not discuss the results of the PROC GLM analyses further in Chapter III.

More issues of statistical power. Another method for examining whether the analyses are subject to Type II error (i.e., have low statistical power) is to examine the extent to which the variation in posttest ratings is due to non-project differences between the schools within the groups. Of course, it was our intent from the beginning of the study to diminish existing non-project differences between groups that might affect the results of the comparison between treatment and control during the study: By randomly assigning schools from pairs that were matched fairly closely on prior reading and mathematics achievement, socio-economic status, and, to the extent possible, ethnicity, we had hoped to diminish preexisting differences among groups. However, some differences might have remained. To address this issue, the *intraclass correlation coefficient* (ICC) is commonly calculated. The smaller the ICC, the less the posttest ratings on the attitude or on the

interest-in-arts instruments are due to the study's design, in which intact groups were assigned to the treatment and control groups. We did not calculate this statistic, however, because the between-group differences in mean ratings, as reported in Chapter III, are quite small.

The issue of statistical power is central to the selection and conduct of data analyses and to reporting the findings of our study. For example, the small number of schools assigned to project and control groups affects power. We will do further analyses of power and discuss the topic in greater depth in the final evaluation report of the project at the end of the third year, when the data most likely to be adversely affected by low power will be analyzed.

Student Behavior

We will obtain data on student behavior from the HDOE's Chapter 19 program, which collects school-reported data on disciplinary infractions, when they become available later this year. Only Class C infractions, such as class cutting, insubordination, truancy, and so forth, will be collected. In our fall addendum we will compare the differences between project and comparison third- and fourth-grade students. Differences in gains between project and comparison schools from the beginning to the end of the project will be reported in the third year of the project.

Evaluation Question 3

Relationships between student characteristics, such as (a) gender, ethnicity, socio-economic status, and interest in (and prior exposure to) artistic activities and (b) students' improvements in achievement, and in their attitudes toward school will be examined at the end of the three-year evaluation to help determine the extent to which the program influences student performance more than demographic variables.

Students Exposure to the Arts: Parent Survey

To determine the extent to which students experience with the arts outside of school might effect project success, we administered a questionnaire to project and control school third- and fourth-grade students' parents. Of the approximately 700 parents to whom questionnaires were distributed in Grades 3 and 4 at the project and control schools, 77 (11%) returned and completed the instrument. Ten of the 77 questionnaires did not provide grade or school information, leaving only 67 questionnaires that could be analyzed ($N=26$ for project and $N=41$ for control). We do not believe that the results on these questionnaires warrant reporting, because the response rate is so low.

Therefore, we did not analyze these data and do not discuss them further.

Evaluation Question 4

The fourth question addressed in this study has to do with the changes shown in teachers' skills in implementing the project, as well their attitudes towards the arts in the classroom.

Attitudes Toward Teaching with the Arts Survey

Teachers' attitudes towards teaching with the arts were assessed using a slightly modified version of the Teaching With the Arts Survey (Oreck, 2001). Information about the validity and reliability of the instrument was reported in the evaluation report for the first year of the project (Brandon, Lawton, & Krohn-Ching, 2004). The 18-item survey was administered to 12 project and 13 control school teachers in the fall (pretest) of SY 2004–05. The survey was administered to 11 project and 12 control school teachers in the spring (posttest) of SY 2004–05. An ANCOVA using SAS PROC MIXED software, with Fall 2004 mean ratings as the covariate, was conducted to determine the effects of the program on teachers' Spring 2005 mean ratings. In addition, data for the seven project school and the five control school teachers who participated in both the first and second years of the project are analyzed separately. The results of the ANCOVA analysis and the descriptive statistics are given in Chapter III.

Project Teacher Interviews and Focus Groups

Project teacher interviews and focus groups were conducted in December 2004 and May 2005 to collect data on teachers' opinions about their skills in using the arts. The interviews and focus groups were audio-recorded and transcribed for analysis. The teacher interviews conducted in December asked the project teachers for their opinions about their professional development experience (including the full-day institutes and in-class mentoring sessions), the factors that affected their use of the arts strategies, and the observed effects and overall opinions about the program. The transcribed interview comments were reviewed to identify underlying aspects and then coded according to a schema of general descriptive themes. The themes were then quantitatively summed for analysis. The same method of analysis was used for the end-of-year teacher focus groups. The project teacher interviews and focus groups that were conducted to examine Evaluation Question 4 were also developed to address Evaluation Questions 6 and 7. The findings from the teacher interviews and focus groups are shown in Chapter III.

Teacher Observations

A teacher observation protocol, with rubrics, is currently being developed to be used next school year to determine teachers' skills in implementing the project. Teachers will be assessed on (a) their development of lesson plans that appropriately combine the Hawai'i Content and Performance Standards in reading, writing, or mathematics and the ARTS FIRST strategies, and (b) the quality of implementation of their designed lesson plans. The artist mentors will be responsible for assessing the lesson plans. Teachers will be video-recorded as they implement ARTS FIRST strategies, and raters will review the recordings to rate teacher behaviors. This year we began to develop the instrument in collaboration with the project staff and artist mentors, who defined the arts strategies that are taught to the teachers. Details of the development of the teacher observation protocol will be presented in the 2005–06 evaluation report.

Evaluation Questions 5–8

The fifth through the eighth evaluation questions address the extent to which students and teachers looked favorably upon aspects of AFWRP and the extent to which these aspects were fully implemented. Findings about the activities that were the most favorably viewed, and about those most fully implemented, as well as insights into improvements, will allow the development team to make appropriate changes to the program. This is important for the program to be sustainable over time, as well as to maximize increases in student achievement, student and teacher attitudes, and student behavior.

Four data collection procedures, including student focus groups, project teacher interviews and focus groups, a teacher log, and a project teacher professional development survey were used to collect information to answer these questions.

Professional Development Quality Survey

The primary purpose of the Professional Development Quality Survey is to collect teachers' opinions about various aspects of the professional development, including both the full-day institutes and in-class mentoring sessions. The 26-item survey was administered to the 11 project school teachers who were present at the final full-day professional development session of SY 2004–05. Item and total mean ratings are used to determine the extent to which teachers had positive experiences with the professional development. Descriptive statistics of the instrument are presented

in Chapter III.

In addition to the quantitative items, the survey included a section in which the teachers were asked to respond to three open-ended questions:

- 1) Based on your experiences this past year, what are the three top lessons you learned about integrating the arts into your classroom curriculum? This may include specific strategies or more general lessons such as better ways to use the ARTS FIRST program.
- 2) What are the three most important factors contributing to your decisions regarding the use of the arts in your curriculum in the future?
- 3) What is your overall opinion of the ARTS FIRST processes and materials? How might the ARTS FIRST project better serve you and your students?

These questions replaced the eight open-ended questions that we asked on the questionnaire in the first year of the study (Brandon, Lawton, & Krohn-Ching, 2004).

The survey was administered in May 2005 during the final full-day professional development institute at the conclusion of SY 2004–05. The open-ended responses were reviewed for underlying common elements and summarized. The results are presented in Chapter III.

Weekly Teacher Log

The level of implementation of program activities (Evaluation Question 7) was tracked using the weekly teacher log. The weekly teacher log used in the first year of the project was revised, resulting in an online log that was e-mailed to the teachers on the Friday of each week. Remark Web Survey Software was used to develop and administer the online teacher log. The teacher log tracked the use of the art strategies in the teachers' classrooms over a 27-week period (October 2004–May 2005). The weekly use of the arts strategies in reading, writing, and mathematics, as well as the use of the different types of strategies, are presented in Chapter III.

Project Student Focus Groups

Information about the aspects of the program that the project students received most favorably and about the aspects they received least favorably (Evaluation Question 5) was gathered during focus groups that took place in December 2004 and May 2005 of SY 2004–05. The focus groups were conducted with six students (three boys and three girls) in each class of Grades 3 and 4 in the three project schools, for a total of 12 groups and 72 students. The groups lasted about 10 minutes

each. The participating students discussed their perceptions of the project, their perceptions of the changes in their teachers' practices, and their observations of the overall effects of using the arts in other subject areas. The student focus groups were audio recorded and transcribed for summary analyses. The findings from the student focus groups are presented in Chapter III.

Project Teacher Interviews and Focus Groups

In the interviews and focus groups of the project teachers, conducted in December 2004 and May 2005, we gathered information about the activities and aspects of the project that the teachers received most and least favorably (Evaluation Question 6), as well as the activities and aspects of the project that were most fully implemented and which were least fully implemented (Evaluation Question 7). The same method of analysis used to examine Evaluation Question 4 was used to examine Evaluation Questions 6 and 7. The findings are presented in Chapter III.

Evaluation Question 9

Evaluation Question 9 asks, "To what extent does the project have unintended consequences?" Information gathered from teacher interviews, principal interviews, and student focus groups in Years 1, 2 and 3 of the project will allow us identify areas that may cause unintended consequences. These results will be consolidated over the course of the project and reported in the evaluation report next year.

Evaluation Question 10

Evaluation Question 10 is, "To what extent is the project sustainable over time?" In the 2005–06 evaluation report, we will summarize information about the various aspects of the project, including costs, additional resources that the schools devote to the project to ensure its success, and so forth, as well as the overall acceptance of the program by school administration, teachers, and students. These results will be used to examine the likelihood that the project can be sustained over time.

Evaluation Question 11

The final evaluation question addresses the aspects of school context, if any, that might effect the implementation of the AFWRP.

Project and Control Principal Interviews

Aspects of the school context such as students' reading and mathematics programs and student cohort effects were discussed in interviews of project and control school principals. The interviews

were audio-recorded and transcribed for summary analyses that will be used in the final year of the project to identify contextual characteristics that might affect program implementation. A summary of the findings is presented in Chapter III. Analysis of the results obtained in all three years of the project will be presented in the final evaluation report of the project.

School Context Survey

Teachers' perception of school context was assessed using the School Context Survey. The 5-item survey was administered to 11 project and 12 control school teachers in the spring of SY 2004–05. An ANCOVA, with Spring 2004 mean ratings as the covariate, was conducted to determine the effects of a full year of the program on teachers' Spring 2005 mean ratings; only the seven project and five control school teachers who participated in Years 1 and 2 of the project were analyzed. Descriptive statistics and the results of the ANCOVA are presented in Chapter III. Results from all three years of the project will be used to help interpret differences in other questionnaire and interview findings at the end of the project to determine the extent to which school context affects the program.

CHAPTER III RESULTS

In this chapter, we present the results of the 2004–05 evaluation data analyses that we described in Chapter II. The results are organized according to the evaluation questions. Our interpretation and discussion of the results are provided in Chapter IV. As stated in Chapter II, we do not provide results for Evaluation Questions 3, 9, and 10, which we will address in the final year’s evaluation report. The results on student achievement and behavior will be presented in addenda to this report.

Student Attitudes and Interest in the Arts (Evaluation Questions 1 and 2)

The first evaluation question asks about the extent to which students show improvements in reading and mathematics achievement, attitudes toward school, interest in artistic activities, and behavior. The second evaluation question asks about the extent to which these changes differ among project and comparison schools. In this report, we present the findings on student attitudes and arts interest; we will report student achievement and behavior trends in addenda to this report.

Results on the School Attitude Survey

Grade 3 results. School Attitude Survey descriptive statistics for the third-graders on the Spring 2004 (pretest) and Spring 2005 (posttest) are shown in Table 4. In this table, we show results only for the 217 students who completed the instrument for both the pretest and the posttest. As noted in the footnote to the table, the pre- and the post- means are not directly comparable, because the Spring 2004 version of the attitude survey used a 3-point scale to answer the items and the Spring 2005 version used a 4-point scale. We do not discuss these differences here (for either Grade 3 or 4) and instead focus on the most important comparison, which is whether the project and control groups differed notably in Spring 2005 after adjusting for their baseline ratings in Spring 2004. As seen in Table 4, the control group students (mean = 3.34, on a 4-point scale, standard error of the mean = .07) scored slightly higher than the project students (mean = 3.28, standard error of the mean = .07) on the attitudes posttest in Spring 2005 (after adjusting for the nested nature of the design)². This comparison shows a minuscule difference between groups after participating in the program for a

²The means, produced by SAS PROC MIXED, are averages, called *least-square means*, that were adjusted for the nested nature of the study’s design. Standard errors were also adjusted for the nested design.

Table 4
 School Attitude Survey: Descriptive Statistics for Grade 3 Spring 2005
 Posttest, with Grade 2 Spring 2004 Pretest as Covariate^a

School, by group	Pre- or posttest	Mean ^b	S.e. _M
<i>Project:</i>			
Keolu	Pretest	2.66	.08
	Posttest	3.33	.12
Parker	Pretest	2.58	.06
	Posttest	3.31	.09
Lā'ie	Pretest	2.56	.04
	Posttest	3.22	.06
Project total	Pretest	2.58	.03
	Posttest	3.28	.07
<i>Control:</i>			
Ka'a'awa	Pretest	2.45	.09
	Posttest	3.37	.13
He'eia	Pretest	2.59	.04
	Posttest	3.21	.06
Kahuku	Pretest	2.51	.04
	Posttest	3.46	.06
Control total	Pretest	2.53	.03
	Posttest	3.34	.07

^a Results for the ANCOVA indicated no statistically significant difference between project and control groups Grade 3 students' mean scores on the posttest, when controlling for their pretest Grade 2 mean scores ($F = .38, df = 4, p = .570$). The pretest mean scores were not a statistically significant predictor of posttest mean scores ($F = .31, df = 214, p = .578$). Only the scores of Grade 3 students who completed the pretest School Attitude Survey while in Grade 2 were analyzed.

^b Differences between pre- and post- mean scores should be interpreted carefully, because the pretest items used a 3-point scale, and the posttest items used a 4-point scale.

Table 5
 School Attitude Survey: Descriptive Statistics for Grade 4 Spring 2005
 Posttest, with Grade 3 Spring 2004 Pretest as Covariate^a

School, by group	Pre- or posttest	Mean ^b	S.e. _M
<i>Project:</i>			
Keolu	Pretest	2.57	.06
	Posttest	3.02	.11
Parker	Pretest	2.52	.05
	Posttest	2.97	.09
Lā'ie	Pretest	2.62	.05
	Posttest	3.31	.08
Project total	Pretest	2.58	.03
	Posttest	3.11	.09
<i>Control:</i>			
Ka'a'awa	Pretest	2.64	.08
	Posttest	3.34	.14
He'eia	Pretest	2.57	.03
	Posttest	3.29	.06
Kahuku	Pretest	2.57	.03
	Posttest	3.12	.06
Control total	Pretest	2.58	.02
	Posttest	3.23	.09

^a Results for the ANCOVA indicated no statistically significant difference between project and control groups Grade 4 students' mean scores on the posttest, when controlling for their pretest Grade 3 mean scores ($F = 1.00$, $df = 4$, $p = .375$). The pretest mean scores were not a statistically significant predictor of Spring 2005 mean scores ($F = 2.25$, $df = 256$, $p = .135$). Only the scores of Grade 4 students who completed the pretest School Attitude Survey while in Grade 3 were analyzed.

^b Differences between pre- and post- mean scores should be interpreted carefully, because the pretest items used a 3-point scale, and the posttest items used a 4-point scale.

full year. To identify whether the differences between the two groups' posttest ratings were statistically significant, we conducted an ANCOVA, with Spring 2004 mean attitude ratings serving as the covariate. The ANCOVA results showed that the difference between groups was not statistically significant ($F = .38$, $df = 4$, $p = .570$). The pretest ratings did not account for a statistically significant amount of the variance in posttest schools ($F = .31$, $df = 214$, $p = .578$), perhaps in part because these ratings were reported on a 3-point scale, not the 4-point scale used in Spring 2005.

Grade 4 results. School Attitude Survey descriptive statistics for the 259 fourth-graders who took the attitude survey pretest in Spring 2004 and the posttest in Spring 2005 are shown in Table 5. The differences between pre- and post- were about the same for the project and control groups. As seen in Table 5, control group students (mean = 3.23, standard error of the mean = .09) scored slightly higher than the project students (mean = 3.11, standard error of the mean = .09) on the attitudes posttest in Spring 2005. This comparison shows a very small difference between groups, similar to the Grade 3 results. The ANCOVA method, with Spring 2004 mean attitude ratings as the covariate (collected using a 3-point scale), showed no statistically significant difference between the control and project mean ratings ($F = 1.00$, $df = 4$, $p = .375$). Pretest ratings did not account for a statistically significant amount of the variance in posttest schools ($F = 2.25$, $df = 256$, $p = .135$).

Results on the Student Interest in the Arts Questionnaire

Grade 3 results. Descriptive statistics for the group of 231 third-graders' who took the Spring 2005 posttest and the Fall 2004 pretest are shown in Table 6. As seen in this table, both groups dropped slightly from pre- to post-. Project group students, with a mean posttest rating of 3.04 on a 4-point scale (standard error of the mean = .05) scored slightly higher than the control students (mean = 2.92, standard error of the mean = .05) on the posttest. An ANCOVA, with the pretest mean ratings as the covariate, showed that this small difference between groups was not statistically significant ($F = 2.83$, $df = 4$, $p = .168$). Pretest ratings accounted for a statistically significant amount of the variance in posttest ratings ($F = 11.92$, $df = 231$, $p < .001$).

Grade 4 results. Student Interest in the Arts Questionnaire descriptive statistics for the 246 fourth-graders who took both the Fall 2004 pretest and Spring 2004 posttest are shown in Table 7. The project group dropped slightly from pre- to post-; the control group ratings were about the same

Table 6
Interest in the Arts Questionnaire: Descriptive Statistics for Grade 3 Spring 2005 Posttest, with Fall 2004 Pretest as Covariate^a

School, by group	Pre- or posttest	Mean ^b	S.e. _M
<i>Project:</i>			
Keolu	Pretest	3.26	.16
	Posttest	3.20	.17
Parker	Pretest	3.10	.07
	Posttest	3.00	.07
Lā'ie	Pretest	3.21	.07
	Posttest	3.07	.07
Project total	Pretest	3.17	.06
	Posttest	3.04	.05
<i>Control:</i>			
Ka'a'awa	Pretest	3.16	.15
	Posttest	2.79	.15
He'eia	Pretest	3.02	.07
	Posttest	2.87	.08
Kahuku	Pretest	3.19	.09
	Posttest	3.04	.09
Control total	Pretest	3.10	.06
	Posttest	2.92	.05

^a Results for the ANCOVA indicated no statistically significant difference between project and control groups Grade 3 students' mean scores on the posttest, when controlling for their pretest mean scores ($F = 2.83$, $df = 4$, $p = .168$). Pretest mean scores were a statistically significant predictor of posttest mean scores ($F = 11.92$, $df = 231$, $p < .001$). Only the scores of Grade 3 students who completed both the Fall 2004 pretest and Spring 2005 posttest were analyzed.

^b The student responded on a 1–4 scale for both the Fall 2004 and Spring 2005 questionnaires.

Table 7
Interest in the Arts Questionnaire: Descriptive Statistics for Grade 4
Spring 2005 Posttest, with Fall 2004 Pretest as Covariate^a

School, by group	Test time	Means ^b	S.e. _M
<i>Project:</i>			
Keolu	Pretest	2.77	.13
	Posttest	2.62	.15
Parker	Pretest	3.19	.12
	Posttest	2.96	.13
Lā'ie	Pretest	3.36	.09
	Posttest	3.11	.10
Project total	Pretest	3.13	.12
	Posttest	2.92	.11
<i>Control:</i>			
Ka'a'awa	Pretest	3.08	.17
	Posttest	3.19	.18
He'eia	Pretest	3.07	.07
	Posttest	2.95	.08
Kahuku	Pretest	3.10	.07
	Posttest	3.11	.08
Control total	Pretest	3.08	.12
	Posttest	3.06	.10

^a Results for the ANCOVA indicated no statistically significant difference between project and control groups Grade 4 students' mean scores on the posttest, when controlling for their pretest mean scores ($F = .87, df = 4, p = .404$). Pretest mean scores were not a statistically significant predictor of Spring 2005 mean scores ($F = 1.17, df = 243, p = .280$). Only the scores of Grade 4 students who completed both the Fall 2004 pretest and Spring 2005 posttest were analyzed.

^b The student responded on a 1–4 scale for both the Fall 2004 and Spring 2005 questionnaires.

from pre- to post-. The project group students' posttest results (mean = 2.92, standard error of the mean = .11) were slightly lower than the control students' ratings (mean = 3.06, standard error of the mean = .10), but, as shown by the ANCOVA results, the difference between the two groups was not statistically significant ($F = .87, df = 4, p = .404$). The pretest did not account for a statistically significant amount of the variance in posttest ratings ($F = 1.17, df = 243, p = .280$).

Teacher Attitudes and Skills (Evaluation Question 4)

The fourth question addressed in this study has to do with teachers' attitudes towards the arts in the classroom and with changes in their skills in implementing the project.

Results on the Attitudes Toward Teaching with the Arts Survey

In Table 8 we show results for teachers on the Attitudes Toward Teaching with the Arts Survey. The table shows descriptive statistics for the Fall 2004 pretest and Spring 2005 posttest and the results of an ANCOVA conducted to identify Fall-2004-to-Spring-2005 differences between all 22 project and control teachers who had been involved in one or both years of the project. As seen in Table 8, the project teachers' mean ratings—adjusted for the nested nature of the design—decline slightly from fall to spring results, while the control group teachers' mean ratings increased. The project group posttest mean (4.04, standard error of the mean = .11) was virtually identical to the control group teachers' mean (4.06, standard error of the mean = .11). This difference between groups was not statistically significant ($F = .01, df = 4, p = .945$). The Fall 2004 pretest accounted for a statistically significant amount of the variance in the Spring 2005 posttest mean ratings ($F = 73.35, df = 19, p < .001$).

In Table 9, we show the descriptive statistics for the 12 project and control teachers who had been involved in both years of the project. In the table, we also give the results of an ANCOVA. Mean ratings declined slightly for the project teachers and increased somewhat for the control teachers. The project teachers' showed higher posttest attitudes (mean = 4.09, standard error of the mean = .14) than the control teachers (mean = 3.87, standard error of the mean = .17). However, the differences between the groups was not statistically significant ($F = .91, df = 4, p = .394$). The statistical model accounts for 86% of the variance in the Spring 2005 mean ratings, but the Fall 2004 mean ratings account for nearly all this variation, as it is a highly statistically significant predictor of Spring 2005 mean ratings ($F = 42.56, df = 9, p < .001$).

Table 8

Teachers' Attitudes Toward Teaching with the Arts Survey: Descriptive Statistics for Year 2 Spring 2005 Posttest, with Year 2 Fall 2004 Pretest as the covariate^a

Group	Pre- or posttest	<i>N</i>	Mean ^b	S.e. _{<i>M</i>}
Project	Pretest	10	4.14	.36
	Posttest	10	4.04	.11
Control	Pretest	12	3.61	.35
	Posttest	12	4.06	.11

^a Differences between groups' posttest mean scores were not statistically significant ($F = .01$, $df = 4$, $p = .945$). The pretest mean scores significantly predicted the posttest mean scores ($F = 73.35$, $df = 19$, $p < .001$). Only the scores of the teachers who completed both the Fall 2004 and Spring 2005 survey were analyzed.

^d The teachers responded on a 1–6 scale for both the pretest and the posttest.

Table 9

Teachers' Attitudes Toward Teaching with the Arts Survey: Descriptive Statistics for Year 2 Spring 2005 Posttest, with Year 1 Spring 2004 Pretest as the covariate^a

Group	Pre- or posttest	<i>N</i>	Means ^b	S.e. _{<i>M</i>}
Project	Pretest	7	4.33	.30
	Posttest	7	4.09	.14
Control	Pretest	5	3.79	.36
	Posttest	5	3.87	.17

^a Differences between groups' posttest mean scores were not statistically significant ($F = .91$, $df = 4$, $p = .394$). The pretest mean scores significantly predicted the posttest mean scores ($F = 42.56$, $df = 9$, $p = .0001$). Only the scores of the teachers who completed both the Fall 2004 and Spring 2005 survey were analyzed.

^b The teachers responded on a 1–6 scale for both the pretest and the posttest.

Project Teacher Interview and Focus Group Results

Project teachers were interviewed individually at mid-year (December 2004) and participated at the end of the year (May 2005) in grade-level focus groups. The interviews focused on three major themes: opinions about the professional development, issues that effect the teachers' use of the arts in the classroom, and the teachers' perceptions of effects of the program. The focus groups addressed the teachers' use of the arts, the benefits they found when using the arts, and their opinions about the effects of the arts on student achievement. The transcripts of the interviews and the focus groups are shown in Appendix C, Tables C-1 and C-2. Descriptive summaries of the results of the interviews and focus groups are presented below.

Mid-Year Interview Results

Teachers' comments about their opinions about the professional development. In discussing their mid-year opinions about their professional development experience in the full-day institutes and the in-class mentoring sessions, the project teachers discussed both positive and negative aspects of the professional development. A total of 17 comments were coded for analysis. Teachers' positive comments about the professional development accounted for 59% of the total comments, compared to 41% accounted for by negative comments. The most identified positive aspect of the professional development (35% of the comments) was that the teachers learned new skills that could provide variety in teaching highly scripted academic programs. The teachers also commented that the in-class mentoring sessions were a positive aspect of the professional development (24% of the comments); they believed that these sessions helped increase their comfort in using the ARTS FIRST teaching strategies and enhanced students' interest in the arts. The negative aspects of the professional development include the length of the full-day professional development institutes, with the primary concern being the time away from their classroom (17% of the comments). Some teachers also discussed the lack of relevance or realism in the various role playing lessons; they commented that the lessons were "too perfect" and not realistic for their classrooms (24%).

Teachers' comments about the issues affecting their use of the arts in the classroom. A total of 13 comments about the teachers' perceptions of issues affecting the use of arts strategies in their classrooms were analyzed. As was found in the evaluation of the first year of the project, the teachers mentioned issues having to do with time requirements (46% of the comments) more than they

mentioned other issues. These issues included the lengthy time required to conduct reading programs, the time required to plan how to integrate the arts into these programs, and the extensive time that the mentors spent in the classroom modeling the various teaching strategies. Teachers also commented on having difficulties determining the strategies to best apply to lessons, as well as the limitations in applying the strategies in highly prescribed reading programs (38%). In addition, one teacher commented on how the strategies are a low priority because she is not convinced about their effectiveness, and another teacher commented that making sure that students stay on task was a higher priority than using the strategies.

Teachers' observations about the program's effects. As with the comments about teachers' opinions about the professional development, teachers' comments about the observable effects of the program were separated into positive and negative aspects. A total of 29 overall comments were analyzed. The positive aspects (55% of the overall comments) were (a) student benefits, including the variation in instruction, which is useful for students of widely varying achievement levels, and the perceived effect of the arts strategies on students' expressive writing abilities (31%); (b) the additional teaching tools provided by the program (14%); and (c) how the program increased the teachers' comfort in using the arts (10%). Of the negative aspects discussed (45% of the overall comments), there were a several comments having to do with teachers' concerns about the extent to which the program will affect student achievement scores (35%). These comments had to do with the teachers' beliefs that the program was not being implemented to the extent they believed was necessary and that they could not clearly identify the connection between the arts strategies and other subject areas. The time it takes to teach a lesson using the ARTS FIRST strategies (7%, two comments) and administrative constraints (3%, one comment) were other perceived negative aspects.

End-of-the-Year Focus Group Results

Teachers' use of the arts strategies. Project teachers made a total of 19 comments about their use of the ARTS FIRST strategies and about the reasons for using the strategies in the focus groups. When asked about the arts strategies that they were using the most, the teachers most often mentioned the drama strategies, including tableau, pantomime, auto-image, and scene-building. This was the case even for Grade 4 teachers, whose training focus this year was on dance strategies. When asked why these strategies were the most used, familiarity was the most identified reason (37%, 7

of 19 comments). Comfort, or efficacy (21%), and time (21%) were the two other top reasons given for using these strategies. The teachers also made two comments about the benefits to the students (11%), one comment about environmental constraints (5%), and one comment about classroom management (5%).

Opinions about program feasibility. The teachers were asked about the issues that would affect their long-term use of the arts. Their opinions, expressed in 18 comments, reflect aspects of the program's feasibility. In these comments, five themes were identified. Time was the most discussed theme (28%, 5 comments) that the teachers believed would effect long-term use. In several of these comments, the teachers stated that they were excited about all the new tools they were getting from the workshops but that they lacked the time in the classroom to adequately put them to use. The teachers also discussed aspects of their reading and mathematics that affected their flexibility on how frequently the strategies could be used. These comments were identified as program-dependent issues and accounted for 22% of the comments (4 out of 18). Receiving positive student feedback, in the form of interest and academic improvement, which comprised 22% of the comments, was given as a reason why some teachers would continue to use the strategies. The teachers identified teacher buy-in (17%) and the amount of effort they are willing to commit to the strategies (11%) as issues affecting program longevity. Some teachers indicated that they did not believe they used the arts strategies enough in their classroom to see a direct effect on HSA scores. However, other stated that they do believe that the strategies had the potential for increasing student achievement, especially in the writing component of the HSA, if used on a more consistent basis.

Opinions about program benefits. When asked their opinions about the general benefits of the program, 22 of 23 responses had to do with some aspect of the students. These included the program's ability to (a) engage students in classroom activities (43%), (b) help identify which students were understanding the concepts being taught (26%), (c) increase student confidence (17%), and (d) provide the students with a secure understanding of the concepts being taught (9%). A single comment was made about how the teacher has become increasingly comfortable with using the strategies and that the strategies have become integrated into the teacher's pedagogical repertoire, despite the time constraints of the curriculum.

Teachers' and Students' Opinions About the Program and Program Implementation (Evaluation Questions 5–8)

The fifth through the eighth evaluation questions address the extent to which students and teachers looked favorably upon aspects of AFWRP and the extent to which the teachers believe the program has been fully implemented.

Professional Development Quality Survey

The descriptive statistics for the Professional Development Quality Survey for teachers in Grades 3 and 4 are shown in Table 10. As seen in this table, the teachers have an overall high level of satisfaction with their professional development experience (mean = 5.28 on a 1–6 scale).

Responses to open-ended questions. The open-ended questions to the Professional Development Quality Survey were developed to help determine the aspects of the program that the teachers looked upon most favorably, as well as the aspects of the program that were most fully implemented. The questions are given in Chapter II.

The transcribed responses to the three open-ended responses are presented in Appendix C, Table C-3. The responses to Question 1 ranged from the specific strategies that were used the most to the perceived value of using the arts. Four of the 11 teachers who responded listed the specific strategies that were used most often, including tableau, auto-image, pantomime, and scene building. The remaining seven teachers discussed in more general terms the lessons they learned when using the arts. The responses primarily indicated that the teachers learned that they could use the arts to increase student motivation and confidence in learning, that their students retained more information and understood concepts better, and that using the arts reaches all the types of students. In response to Question 2, the teachers overwhelmingly agreed that their future use of the arts was based on the excitement that the children displayed when they used the strategies. Other comments were (a) that the use of the arts was the only way that they could reach some of students, (b) that creativity was fostered as a result of using the arts, and (c) that the arts provided a community bond within the classroom.

The teachers' responses to the question about their overall opinion about the program showed consistently positive reactions. Several teachers described how the ARTS FIRST project enhanced

Table 10
Professional Development Quality Survey Descriptive Statistics for Year 2, Spring 2005

Item ^a	Mean ^b	St. dev.	S.e. _M
1. To what extent were the issues explored in the ARTS FIRST seminars relevant to your professional responsibilities?	5.10	0.57	0.18
2. To what extent were the instructors of the seminars knowledgeable and helpful?	5.80	0.42	0.13
3. To what extent did you have adequate opportunities to explore the theory and the supporting research about the benefits of integrating the arts into the curriculum?	4.60	0.70	0.22
4. To what extent did the instructional techniques facilitate your learning?	5.20	0.63	0.20
5. To what extent was the content discussed in the ARTS FIRST workshops <i>confusing</i> to you?	2.20	1.62	0.51
6. To what extent was the leader or group facilitator well prepared?	6.00	0.00	0.00
7. To what extent does integrating the arts into the curriculum address an important need?	5.60	0.70	0.22
8. To what extent was the session leader credible?	6.00	0.00	0.00
9. To what extent did the professional development sessions <i>fail</i> to create a climate of professional community?	5.80	0.42	0.13
10. To what extent did you have access to all the necessary materials and resources?	5.10	0.74	0.23
11. To what extent were the strategies presented by the seminars and the in-class mentoring sessions <i>difficult</i> to understand?	5.50	0.97	0.31
12. To what extent did the materials enhance your learning?	5.50	0.71	0.22
13. To what extent was the content of the professional development <i>irrelevant</i> to your classroom?	5.40	1.26	0.40
14. To what extent were the activities in which you engaged carefully planned and well organized?	5.50	0.71	0.22
15. To what extent was your time well spent?	5.50	0.85	0.27
16. To what extent were the goals and objectives <i>vague</i> when you began the ARTS FIRST project?	4.60	1.65	0.52
17. To what extent did the professional development sessions include collaborative discussion about professional practices?	5.50	0.97	0.31
18. To what extent was your understanding of the arts enhanced as a result of the workshops?	5.50	0.71	0.22
19. To what extent were new practices <i>rushed</i> and <i>not</i> thoroughly explained?	5.20	1.03	0.33
20. To what extent did the professional development sessions support opportunities to network and learn from colleagues?	4.70	1.34	0.42
21. To what extent was <i>insufficient</i> time provided for the completion of the tasks?	5.10	1.45	0.46
22. To what extent will the strategies you learned be useful to you?	5.60	0.70	0.22
23. To what extent was time organized efficiently and effectively?	5.70	0.48	0.15
24. To what extent were the activities relevant to the purpose of the project?	5.60	0.70	0.22
25. To what extent will you be able to apply the strategies you learned in the seminars and mentoring sessions?	5.40	0.84	0.27
26. To what extent did your experience include a variety of learning activities?	5.70	0.67	0.21
Total	5.28	0.80	0.25

^a Items 5, 9, 11, 13, 16, 19, 21 were reversed coded for analysis.

^b Teachers responded to a 1–6 scale.

their teaching ability and stated that they were generally excited with the opportunity to bring the arts back into the curriculum. Other teachers gave examples of how using the arts has enhanced student learning by creating an enjoyable environment that increases student motivation. Some teachers referred to the artist mentors as the major catalyst in their confidence in, and understanding of, the program.

Weekly Teacher Log Results

Teacher logs were administered to the project teachers at the end of each week for a 27-week (Week of October 15, 2004 – Week of May 20, 2005) period to determine the use of the ARTS FIRST strategies in the classroom. Although our intent was to collect information on the log only about the teachers' use of the arts, we learned in interviews that the teachers logged the mentors' use of the arts in the classroom and the mentors' and teachers' collaborative use of the arts in the classroom. Therefore, the results reported here slightly inflate the teachers' use of arts strategies in their teaching.

An average of seven (out of 13 total) teachers per week completed the logs. The total number of strategies implemented probably is a little low because one teacher did not complete any logs and others might have failed to complete logs every week. In Figure 1 and Table 11, we show the total use of the various ARTS FIRST strategies in three subject areas over the data collection period. The

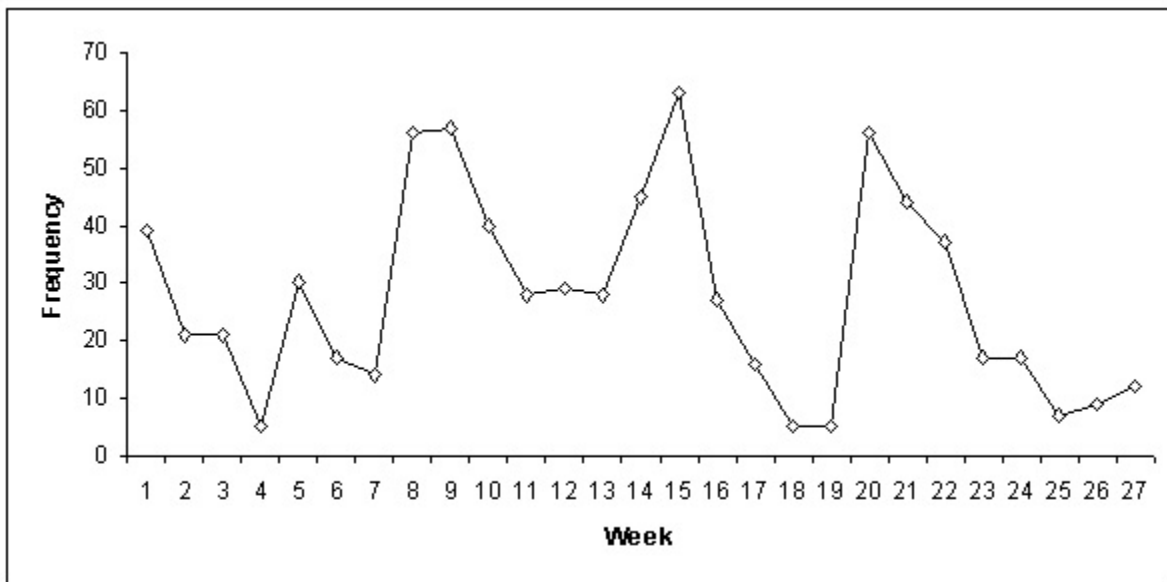


Figure 1. Average use of the ARTS FIRST strategies in the classroom for reading, writing, and mathematics over a 27 week data collection period.

Table 11

Weekly Use of the ARTS FIRST Strategies in Reading, Writing, and Mathematics Over a 27-Week Period

<i>Week ending</i>	<i>Week no.</i>	<i>N</i>	<i>Total</i>	<i>Reading</i>	<i>Writing</i>	<i>Mathematics</i>
10/15/04	1	6	39	20	6	13
10/22/04	2	5	20	11	3	6
10/29/04	3	5	20	11	3	6
11/05/04	4	2	5	3	2	0
11/12/04	5	5	27	12	10	5
11/19/04	6	8	14	10	3	1
11/24/04	7	7	14	12	0	2
12/03/04	8	10	51	27	8	16
12/10/04	9	10	45	28	8	9
12/17/04	10	9	25	18	5	2
1/14/05	11	8	27	16	8	3
1/21/05	12	9	29	14	2	13
1/28/05	13	8	23	11	6	6
2/04/05	14	6	36	14	2	20
2/11/05	15	7	50	15	24	11
2/18/05	16	6	27	8	12	7
2/25/05	17	6	14	6	5	3
3/04/05	18	6	5	2	1	2
3/11/05	19	6	5	0	2	3
3/18/05	20	8	30	8	9	13
3/25/05 ^a	—	—	—	—	—	—
4/01/05	22	9	36	11	2	23
4/08/05	23	9	17	2	2	13
4/22/05	24	6	17	9	3	5
4/29/05	25	6	17	9	3	5
5/06/05	26	5	4	4	0	0
5/13/05	27	4	9	4	0	5
5/20/05	28	4	11	7	3	1
Total			617	292	132	193
Weekly average ^b		6.7	22.85	10.81	4.89	7.15

^a No data were collected for the week ending March 25, 2005 because the computer server used for the online log was being serviced.

^b The weekly average was computed by taking the total and dividing it by 27 weeks.

teachers were asked to give the frequency of use of the strategies in reading, writing, mathematics, science, and social studies. The results for science and social studies are not included in the figure or table because (a) they are not yet assessed on the HSA, (b) these subjects are not considered basic

Table 12
 Number of the ARTS FIRST Strategies in used Reading, Writing, and Mathematics Over a 27-Week Period

Strategy	<i>N</i>	Weekly average
Auto-image	106	3.93
Shaping	25	.93
Tableau	40	1.48
Thought track	96	3.56
Echoing	174	6.44
Pantomime	60	2.22
Patterning	41	1.52
Mirroring	6	0.22
Space and time	10	0.37
Focusing	35	1.30
Scene-building	20	0.74
Improvisation	4	0.15
Symbolic representation	0	0

skills, which are the focus of the project, and (c) the arts strategies were rarely used when teaching these subjects.

The strategies were used an average of 10.81 times per week in reading, 7.15 times per week in mathematics, and 4.89 times per week in writing. In total, the strategies were used an average of almost 23 times per week in these three subjects by the teachers who completed the log. The spikes in frequency of use at about Weeks 8, 15, and 21, as seen in Figure 1, were near the dates of the full-day professional development workshops.

In Table 12, we present the total number and weekly average of each of the 13 arts strategies used in reading, writing, and mathematics. As seen in this table, echoing was used the most, with an average of 6.44 times per week, followed by auto-image (an average of 3.93 times per week) and thought track (an average of 3.56 times per week). Tableau, patterning, focusing, and shaping were

each used about an average of one time per week. Mirroring, space and time, and improvisation had minimal use, and symbolic representation was not used.

Project Student Focus Group Results

Student focus groups were conducted in Grades 3 and 4 at each of the three project schools. The purpose of the focus groups was to identify the aspects of the program that the students received most favorably and those that they received least favorably. The aggregated transcriptions of the student focus group sessions are provided in Appendix C, Table C-4. When the students were asked about the aspects of the program that they liked most, the responses were often specific to particular lessons that were taught. For example, students' would say, "going to planet Titan," which was a drama activity constructed from a reading lesson. They also made general comments about how the use of the arts in their classes helped them understand their reading and mathematics assignments better. Overall, students' responses indicated a high level of satisfaction with the program. When asked why they thought the arts were being used in their classrooms, a wide range of responses were given. Some examples of the responses are, "They were used so we could have fun and learn math at the same time," "so we can learn about acting or dancing," and "so we could understand the stories more." When asked about the aspects of the program that they enjoyed the least, the students commented on being embarrassed at the beginning, or during specific activities, as well as bad behavior from classmates during the lessons that involved the arts.

Effects of School Context (Evaluation Question 11)

The final question addresses the aspects of school context, if any, that might effect the research and evaluation findings.

Project and Control Principal Interview Results

We collected information about the contexts within which the project was conducted at the project schools and, for comparison purposes, about these contexts at the control schools, in interviews of the schools' principals. The results indicated no overall outstanding contextual differences between the project and control group schools. Each of the six schools has adopted a nationally disseminated, major reading program that prescribes classroom reading instruction: Keolu has adopted Harcourt Trophies, Lā'ie has adopted Success for All, and Benjamin Parker has adopted Open Court Reading. (Among the three control schools, Kahuku and He'eia have adopted Harcourt

Trophies and Ka'a'awa has adopted Success for All.) The principals believe their current reading programs are effective in increasing student achievement to the extent to which teachers follow the given structure of the programs. Kahuka Elementary is planning to implement its program more widely in 2005–06. Both project and control school principals stated that the arts are an important part of education and that they encourage the use of the arts. Each of the schools provide opportunities to the lower achieving students to increase their reading skills by providing spin-off in-school programs or additional help during after-school programs. Each of the schools will also be committing additional time and resources to increase students' mathematics achievement on the upcoming HSA.

The principals' comments about the effects of the student cohorts for Grades 3 and 4 indicate that there were no substantial student cohort effects. We will summarize the results across the three years of the project in the final project evaluation report. Project and comparison schools will be compared to identify and isolate program specific changes that are found as a result of program implementation.

School Context Survey Results

Teachers' perception of school context was assessed using the School Context Survey. In Table 13, we show descriptive statistics for the Spring 2005 School Context Survey. As seen in the table, the mean rating for the project group dropped during the year, and the mean rating for the control group increased. At the end of the year, the project group showed a more positive perception of administrative support for using the arts in the classroom (project school mean = 3.87 and standard error of the mean = .64; control group mean = 3.09 and standard error of the mean = .70). These are marked differences, but the ANCOVA analyses, with Spring 2004 mean ratings as the covariate, indicated no statistically significant differences between project and control school teachers ($F = .60$, $df = 4$, $p = .414$). The lack of statistical significance might be due to the low number of teachers. The spring 2004 pretest mean ratings accounted for a statistically significant amount of the variance in the spring 2005 mean ratings ($F = 5.67$, $df = 9$, $p = .041$).

Table 13
 School Context Survey: Descriptive Statistics for Year 2 Spring 2005
 (Posttest), with Spring 2004 (Pretest) as the covariate, by Grades^a

Group	Pre- or posttest	<i>N</i>	Means ^b	S.e. _{<i>M</i>}
Project	Pretest	7	4.31	.35
	Posttest	7	3.87	.64
Control	Pretest	5	2.16	.42
	Posttest	5	3.09	.70

^a Results for the ANCOVA indicated no statistically significant difference between project and control group teachers' mean scores on the posttest when controlling for their pretest mean scores ($F = .60, df = 4, p = .414$). The pretest mean scores were a significant predictor of posttest mean scores ($F = 5.67, df = 9, p = .041$). Only the scores of teachers who completed the Spring 2004 (Year 1) and Spring 2005 (Year 2) survey were analyzed.

^c Teachers responded on a 1–6 scale.

CHAPTER IV DISCUSSION

In this chapter, we summarize and interpret the results collected during the evaluation of AFWRP during the second year of the three-year project. We provide some conclusions about the programs' effects to date, but these conclusions are preliminary, because the program has been implemented for only a year, and the changes made in the arts strategies during SY 2004–05 suggest that the program might not be sufficiently mature to show notable effects. We will be able to make more firm conclusions about the program after it has become more stable and implemented longer at the end of the third year of the study.

In contrast to Chapters II and III, which are organized by evaluation question, in this chapter we first present findings about the operation of the program, then discuss findings about program effects to date, and finally the potential effects of context on these outcomes.

What Can We Conclude About Teachers' Opinions About the Program?

Generally speaking, the teachers are pleased to be a part of a project that brought the arts back into the classroom. They reported that they like not having to be artists to use the strategies and that they believe the project has enhanced their teaching.

Across multiple data-collection instruments, we found that the project teachers believed that they were more proficient in using the arts strategies than they were in Year 1. This is not direct evidence of an increase in skills, but we can speculate that their increase in self-efficacy might lead to a greater use of the arts in their classroom.

Some of the teacher questionnaire results showed that there were no differences between project and control teachers' attitudes toward using the arts, neither for the full group of teachers participating in the project (whether it be for one year or for two) or for the partial group who had participated for only one year. Indeed, the project and control groups' average attitude survey ratings were virtually identical by the end of the year. Furthermore, the project teachers' ratings decreased somewhat from the spring of last year to the spring of this year. This might be due to a statistical effect in which high ratings tend to regress back toward the mid-point of ratings. Even if the slight drop is due to this regression effect, however, the case cannot be made that the project teachers are showing more positive attitudes toward the arts than the control teachers.

Some of the teachers' comments suggest that they believe the program can benefit the students, but other comments suggest that they believe the benefits might be limited. The teachers stated that the program can increase student engagement, improve students' expressive writing skills, and increase students' academic confidence; furthermore, they believe that the program benefits students of all achievement levels. However, they also questioned the effects of the program on students' achievement test scores. The teachers do not believe that the effects of the strategies will be found beyond their immediate use in the classroom; they believe that a strategy might have an immediate beneficial effect on student knowledge or skills in the classroom, but these benefits might not affect test scores. The teachers have perceived the positive effects of some strategies on student classroom performance but do not anticipate that beneficial long-term effects will be manifested in achievement test results. In SY 2005–06 of the project, we will explore this issue in interviews and focus groups to identify the reasons (if they still exist) why teachers are not recognizing a connection between their perceptions of the benefits of the program and student achievement on standardized tests.

The teachers reported that they sometimes did not know the most appropriate application or use of the various arts strategies. The program developers are attending to this concern by developing three primary arts strategies for next year, which should allow for greater understanding and more focused use of the strategies. We suggest that the developers and mentors continue to monitor the extent to which the teachers report they know the circumstances under which they should use the strategies in their classroom instruction.

If teachers are correct that the effects of the project are limited, it behooves us to identify which aspects of the program they view the least favorably. Teachers were concerned about the time it takes to implement the arts strategies into classroom instruction. Several teachers were concerned about the relevance of some of the professional development activities: They indicated that at times they felt that the "role-playing" activities in the professional development were too controlled and not representative of the actual classroom environment. It was suggested that additional mentoring and in-class modeling, which could replace one of the two back-to-back full day sessions, might be helpful. This would address the teachers' perceptions of the detrimental effects of losing classroom time to two full-days of professional development approximately every three months. However, this suggestion ignores the issue of whether the program can teach the program model adequately in

fewer full-day professional development sessions.

What Can We Conclude About Students' Opinions About the Program?

The student focus group data do not provide detailed insights about students' perceptions of the project, other than general appreciation of the arts and perceived exposure to the arts. However, we believe that they are a valid reflection of the participating students' opinions, because the students were fully involved in the focus groups and provided thoughtful comments.

Overall, the students made many more comments about favorable aspects of the program than unfavorable aspects, and the unfavorable aspects that they mentioned were minor. Their comments suggest a high level of satisfaction with the use of the arts in their classrooms and enjoyment in using the arts. The results suggest that the students were exposed to the arts more consistently than last year because of the teachers' and the artist mentors' use of the strategies.

What Can We Conclude about the Level of Implementation of the Arts Strategies in the Classroom?

The teacher log results conflict with the teachers' reports in interviews about their use of the arts. The logs show that echoing and thought-track were used the most, but the interview results suggest that the drama strategies, including tableau, auto-image, pantomime, and scene-building, were implemented the most frequently. The log data probably do not fully reflect the total use of the strategies, because the teachers might have failed to report all the strategies that they used every week, but we believe that the log is the most accurate measure of the strategies being used. These results show low levels of implementation of arts strategies in the classroom; for example, on the average, the teachers reported one-half of an instance of using echoing per teacher per week over the course of the 27 weeks during which logs were collected. They reported about one-third of an instance of using auto-image and slightly less use of thought track. All the other strategies were used considerably less.

Next year we hope to get a better weekly log response rate (this year, an average of only half the teachers filled out the logs each week); if we are successful, the results might show more use of the arts strategies than the teachers reported this year. However, based on teachers' interview comments, we believe that teachers did not submit logs in the weeks that they did not use strategies. Therefore, it is likely that the level of use might not be much higher than it was this year.

What Can We Conclude About the Effects of the Program on Students?

Student Attitudes Toward School

We found virtually no differences among project and control group student attitudes in both Grade 3 and Grade 4. Both groups showed fairly high posttest mean ratings, with the control group mean being slightly higher than the project group mean and with little variation found among the students within the groups. These results are very similar to the results of the first year of the evaluation (Brandon, Lawton, & Krohn-Ching, 2004), and our interpretation of the results this year is similar. The first part of our interpretation has to do with the high mean ratings found in the study. Last year we proposed that these high means might indicate a *ceiling effect*, perhaps due in part to the 3-point scale for responding to the items. To address this issue, this year we changed the response scale to a 4-point scale. The rationale was to allow more variation among ratings. However, the mean ratings for the groups this year continued to be high. This led us to think that a more plausible explanation of the high ratings for both groups is that student attitudes toward school in the third and fourth grades tend to be very positive and unamenable to the effects of add-on programs.

The second part of our interpretation has to do with the lack of differences between the two groups. This finding could be due to a ceiling effect or, as discussed above, to the uniformly positive attitudes among children.

We believe that both of these interpretations are plausible. Next year, when fifth-graders are participating, there will probably be more variation in the ratings, because as children get older, their opinions begin to diverge and school becomes less appealing to some than to others. Of course, it also is plausible that the lack of differences among groups might reflect a lack of effect of the program. The project might not be having a notable effect for at least two reasons. First, the AFWRP strategies that are taught to the teachers in the professional development are not yet widely used in the classrooms. It probably is unreasonable to expect measurable effects before the participating teachers use the strategies more frequently. Second, the project methods have not yet evolved into a well-defined set of teaching strategies. The teaching strategies have undergone significant revisions during the past year; the original list of 13 strategies, which varied across the three art forms, has been revised to include three strategies (observing, patterning, and representing) that are common across the art forms. This ongoing evolution of the project, reflecting the changes that the project

personnel believe are necessary if the strategies are to affect children's attitudes and achievement notably, may suggest that the strategies implemented to date are unlikely to have had their fully intended effects.

Student Interest in Artistic Activities

The results on the Interest in the Arts Questionnaire were similar to the results on the Student Attitude Survey: There were virtually no differences between groups' posttest ratings after adjusting for pretest ratings. Mean ratings were high but not quite as high as the means on the attitude survey. Mean ratings dropped from pre- to post- for both groups in both grades. This might be due to a slight regression effect or to the different times of year (Fall and Spring) at which the pretest and posttest were administered. Not too much should be made of the drop in ratings, because our primary analysis is the comparison of project and control groups at the end of the year after adjusting for the differences between the groups at the beginning of the year. In the third year of the evaluation, we will conduct analyses of differences from the Spring of 2005 to the Spring of 2006 to eliminate the possible effect of the time of year.

What School Characteristics Might Influence the Comparison Between Project and Control Schools?

Few contextual differences between the project and control schools were identified in the principal interviews. All schools are involved in reading programs that are (or claim to be) based on research, as mandated by the USDOE under the No Child Left Behind Act, as well as in-school and after-school programs. The project and control teachers' survey results about the school context do not suggest that the control schools have any school climate advantages that might work against the project schools in the project-control comparisons. Furthermore, the principals did not report anything about the grade-level cohorts of students that might have detrimentally affected project students' results. Perhaps our review of the behavior data that we will present in our addendum to this report will provide some further insight into this aspect of school context. Also, when we examine the extent to which gender, socio-economic status, and ethnicity affect student achievement in the final evaluation report next year, we might identify school and grade-level cohort effects.

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APPENDIX A

Description of Year 2 Professional Development Workshops for the ARTS FIRST Windward Research Project

ARTS FIRST Windward Research Project Year 2 Professional Development Workshops

A significant part of the ARTS FIRST Windward Research Project's teacher training takes place during the full-day professional development sessions. While the training in the first year emphasized drama for Grade 3 teachers from the three project schools, the Year 2 professional development sessions focused on music and dance for Grade 4 teachers. At the same time, the professional development training in drama continued for all Grade 3 teachers.

As reported and described in the Year 1 account of the professional development sessions (Brandon, Lawton, & Krohn-Ching, 2004, p. 39), the project's eighth and last professional development for the first year was also the first professional development session for Year 2 of the project. It took place on May 25, 2004 from 9:00AM–3:30 PM at Lā'ie Elementary School. Both, the Year 1, Grade 3 teachers, and the Year 2, Grade 4 teachers participated in this session.

The second Professional Development for Project Year II took place on September 20 and 21, 2004, at Ben Parker Elementary School from 9:00 AM–3:00 PM on both days. On September 20, the second professional development day, drama artist/mentor Natalie McKinney started the group with an icebreaker strategy when she introduced hand clapping sequences and asked the teachers to follow her specific clapping patterns. In a getting-to-know-you exercise teachers partnered with each other and exchanged information about themselves, the grade level they teach, and the school they are from. Teachers re-partnered several times.

Prior to explaining/reviewing the drama strategy of auto-image, in which one “freezes” and neither talks nor moves, Natalie went around the circle asking each teachers to explain the meaning of “freezing” in his/her own words. In a series of exercises, with cues given by Natalie, the teachers explored auto-image by using their bodies to create varied shapes at different levels. Teachers added expressions of feeling and emotion to their frozen shapes, also called statues. In a discussion of their “frozen pictures” the teachers described the auto-image experience, their expression of being mad, how it was intense, and tiring. Natalie shared with the group that in the arts you take risks and step out of your own comfort zone. She congratulated them for successfully completing their first strategy, that of auto-focus.

In each of three groups teachers brain stormed briefly how the just learned strategy could be used

with their students, and in which ways. Artist/mentor Dan Kelin led the reading group. Here teachers expressed that auto-imaging could be used in expressing character traits, identifying with a character, showing how a character changes, and reacting to a character. They felt that auto-imaging could also be use to express actions from the plot, predict outcomes, and sequence, as well as to review the story, and to relate the story to ones own experience. Then the group, led by Deb Brzoska, brain stormed how the auto-imaging strategy could be applied to writing. The teachers expressed that it could be used in pre-writing, i.e. in orally telling to generate lots of ideas, for acquiring details, and for understanding parts of speech, such as nouns and verbs, etc. The group felt this strategy would also be helpful for restating conversations, and that moving immediately from auto-imaging to writing would be most useful.

Natalie's group discussed who auto-imaging could be applied to math learning. The teachers expressed that it could help students in learning 2-dimensional and 3-dimensional geometric shapes, and in measurements, both by weight and volume. Time, passing of time, and how it changes, could also be learned through auto-imaging.

In her first-hour summary Deb reflected that what the teachers just completed was the essence of the research project. She explained that the focus of the project is placed on the strategies, how they are used in the classroom, and how they help the teachers teach reading, writing, and math. Deb emphasized that the art activities are not of primary importance, but that they are the vehicle for better teaching and learning. She gave the example of two strategies, the on/off and freeze verbal cues, which are both introduced for the first grade in the ARTS FIRST Toolkit, but that they can be used if the teachers/students were not familiar with the strategies before. She requested that the teachers give feedback throughout the year to how the strategies work for them. The teachers asked to have strategies presented in writing through bullets, rather than continuous text. Deb expressed that the impact of the strategies is carried over into other grades, that some strategies are the same in all four art forms, and that they are brief, quick and easy.

Brian Lawton, the project manager, reported the first year findings of the research project. They were based on the teacher logs, and the teacher and student interviews. He stated that a greater level of implementation was needed, and that teachers expressed that a higher degree of accountability on their part should be expected of the project. He shared that Hawai'i's project is one of 22, and that

all of them had similar outcomes, due to the shortness of first project year. In the research findings no significant differences in the control group and the research group were assumed. Brian stated that, at this point, he had not yet broken down student achievement data for the year. He announced that changes would be made in the pre-questionnaire regarding prior experiences in the arts, which will mainly affect the control schools, and that the scale in one of the questionnaires will be increased. He is also planning on increasing the focus groups for this year from one to four.

In two breakout groups sample strategies were applied to a goal. Dan and all third grade teachers used two drama strategies, thought track and tableau with reading goals. The fourth grade teachers from the three schools worked with Vivian Lee and Jolene Kim in using the dance strategy shaping with writing goals. The writer of this report attended the fourth grade group session. Vivian modeled word transition. She shared the book *Free Fall* by Davis Wiesner, which visually illustrates smooth transitions from one part of the book to the next. Vivian expressed that in writing, smooth transitions are also needed. The group brainstormed transition words such as: then, therefore, however, next, lastly, first-second-third, and, but, to finally, also, because, rather furthermore, thus, instead, indeed, similarly, and transition phrases such as later on and on the other hand. The group used shaping of body parts and the whole body through curving, stretching, bending, and twisting. Using two different shaping methods, one for the upper and another for the lower body, allowed the teachers to visualize the lack of transition from one body part to another. Shaping took place at all three levels (high, middle, and low). While the teachers went through their shaping motions, Vivian used drum cues for starting and freezing. By a count of 1 to 8 the group created slow changes from one shape to another, such as stretching to bending, curving to twisting, stretching to curving, and twisting to stretching. To increase the complexity of the lesson, motion was changed from stationary to moving through the room. Two groups alternated from freezing at an 8-count, and moving their changing shapes at various levels. Teachers called out a transition word as they changed from moving to freezing and visa versa. Management skills in this lesson include no touching, and overall slow motions to eliminate rushing and running. The group reflected upon this lesson, and how it could benefit their students. The teachers discussed that one of the performance indicators for grade 4 is for students to show that their writing is ‘smooth.’ They expressed that this lesson is not only “fun,” but that it relates to a specific writing learning. The teachers felt the need for students to know

transition words, and as teachers, they need to present good examples of transition sentences.

When the third and fourth grade teachers rejoined, Deb emphasized the mentors'/artists' need to become familiar with the reading, writing, and math materials of the specific classes they are working with. The starting point, however, has to come from the teachers and the mentors/artists will select the most appropriate strategy for the specific learning. The teachers then can use the strategies over and over, so students are able to build a repertoire of strategies to learn with.

In the first session of the afternoon all third and fourth grade teachers joined Jolene Kim in a warm-up lesson of echoing. The story of Ali Baba and the Forty Thieves became the base for echoing by clapping with hands and on knees. The group created sentences about Ali Baba, what he looked like, did, and had. Through the rhythmic phrasing of echoing students build a foundation of basic skills. Deb reflected on the significance in learning through echoing, and the teachers provided examples for its use in the classroom. It can be applied in reading, writing, and math. The value of repetition is applied when students memorize poetry, repeat the spelling of words, and remember multiplications, geometric shapes, or math concepts with lots of vocabulary. The teachers also expressed that echoing can be used as a management strategy for focusing and grabbing attention, where students see it more as a game than strict classroom management. The echoing strategy can help students to simply become familiar with new words, developing listening skills, or "fleshing out a character" as Jolene did with Ali Baba. Echoing is a good strategy for auditory learners.

In a fourth grade discussion group Deb asked the teachers what their specific reading targets were, and what kind of support they needed in teaching reading, writing, and math. The discussion revealed that teachers felt students lacked in reading comprehension, in particular understanding vocabulary, character settings in stories, and self-connection to stories they read. Teachers expressed a need to get help in poetry, specifically the interpretation of haiku. Using references and resources, encyclopedias, periodicals and a thesaurus were also of concern. Teachers also stated that their students had a difficult time with phonics, in decoding, and recognizing context clues. In regards to getting support in writing, the teachers discussed their students' need to make their writing more interesting, learning to relate their stories to their own experiences, and recognizing what good writing is. Students also needed to expand their knowledge and use of adverbs and adjectives, as well as correct punctuation. One teacher shared that she uses sign language in teaching punctuation.

In teaching math, the teachers expressed concern that some of the key concepts in fourth grade are addition, subtraction, and multiplication, but in the state tests the answers are not enough, instead, students have to explain and show reasons for their answers. Teachers also raised the issue that about 50 percent of their students do not understand the multiplication process. Teachers shared that they would like assistance in geometry, specifically angles, polygons, and congruence. The group discussed that the approach to learning math might be to work on concepts all the time, but to also have the students memorize. Allowing students to find the answer, as opposed to giving the answers to them, is a good approach. The open-ended process allows students to explore and make them realize that many answers can be right.

In her symbolic representation lesson Jolene stated that music is represented in the traditional notation of notes, but could also be represented non-traditionally, using other symbols. She asked teachers to look at a traditional music sheet (from Beethoven), as well as a non-traditional one, and study the organization and form (from “The Carnival of the Animals”), and find patterns and repeats of symbols in both, and try to make sense of them. After the teachers had listened to both pieces of music, they discussed how they were able to follow the music with the aid of the symbols. Teachers then listened to a new piece of music and creating their own symbolic representation for it, shared it with others to see if they were able to recognize the music by the use of the symbols. The next process brought the lesson closer to writing: The teachers received a page of continuously written text (from “Pirates of Penzance”). It did not make much sense. However, when presented in a song version with a chorus, it showed organization and made sense. After music was added to the text, the rhythm helped clarify the text. The group discussed that symbols in music directly relate to reading, that writing is using symbols, and that there is a correlation between them. Teachers expressed that they could create their own, simpler piece of writing, and have students arrange it to make better sense of it. When Jolene asked the teachers if this lesson could facilitate reading, they could see its application to fiction writing, outlining, and heading. It could also be used to teach basic sentence structure, and in analyzing writing. One teacher suggested teaching punctuation in writing with the just learned lesson, by eliminating all punctuation in a paragraph, and to ask their students to re-introduce the punctuation back into the original text. The group expressed that this lesson encourages careful listening and that, overall, there is a closer connection between math and music,

than music and reading and writing.

On September 21, the third Professional Development for Year II, Dan Kelin started out by co-teaching a drama strategy with one of the third grade teachers from Lā'ie School. They applied the art strategy pantomime to a reading lesson. Using a non-fiction animal book, the teachers created separate lists of mammal, birds, fish, reptiles, and amphibians. In the lesson all animals were in a “magic box.” After selecting an imaginary animal from the box, each teacher introduced his/her animal to the group. In presenting their pantomime, the teachers engaged their whole bodies, used facial expressions, and showed focus. In his assessment Dan pointed out that the magic box should be opened correctly, and that even though no voice is used, the mouth could look as if something was being said. The teachers discussed that the application of the magic box lesson could be used to express feelings, the character of a story, or that a group magic box could be created, as opposed to auto-image, which is frozen. While continuing the brainstorming, the teachers expressed that verbs in reading could be pantomimed, as well as shapes and measurements in math. They suggested that their students write about what is in the box, from the animals’ perspective, and express its feelings and voice in the I-form of the animal.

The next lesson brought writing and dance together, and the assessment of both. The goal was to find out how we can recognize that students are learning. Under the guidance of Vivian Lee the teachers formed three groups, and created a 64-beat dance composition to three different rhythmic music pieces. Their stories had to include an introduction, a body/middle, and a conclusion. The introduction was to reflect a frozen shape at many levels. The body needed to incorporate over and under movements, reflect balance or counter-balance, and carry all participants in the body of the dance. The last eight counts of the 64-beat composition had to show a different frozen group shape with a significant ending. After practicing their group’s creation, teachers either performed or were part of the audience. Influenced by the specific rhythm of the music given to each group, teachers create uniquely different dances, which were performed twice. When assessing the first group’s dance entitled “Dancing Bridges, “ teachers used these terms: Unison, synchronized, facial expression, surprise, unexpected, smooth transition, organization. The assessment of the second group’s creation, entitled “Dancing Volcano” included descriptions such as: Elegance in dance, connected, stayed connected, solo connects solo, organization, variety of levels, music in their body,

facial expressions. In “Jungle Fever,” the third group’s creation, the assessment terms used were: Energy, complicated, and patterning. Each group was then asked to write a story that reflected its dance. The written story, like the dance, also had to have an introduction, body, and ending. “Dancing Bridges” celebrated an African Wedding, “Dancing Volcano” interpreted flowing lava and how it pushes and rolls over the earth. It also symbolized how people push and pull before coming together. “Jungle Fever” interpreted a tribal sacrifice for hunting, and how the sacrifice rose from the ashes to become the phoenix.

Deb guided the teachers through developing assessment criteria for the dances and the stories. She asked the teachers to think of the same criteria for what makes a dance and a story strong, and what they wanted to be judged on. For their rubric teachers developed three criteria: Organization, energy, and surprise. Under successful organization, teachers were looking for clear beginnings, unison, and connectedness. Weak organization would trail off, be disjointed, and would not hold together. Successful energy would be descriptive, show clear details, and have variety, while unsuccessful energy would be boring. Successful surprise features would include to be engaging, express the unexpected, and that the audience/ reader want more. Unsuccessful surprises would be predictable and flat. Deb suggested to draw the rubrics from the students, and to build relationships between dancing and writing. To assist the teachers in the rubric development, they received a handout of the Hawaii State Assessment–Writing Rubric for Grade 3 and 5, taken from the Teacher’s Guide for Interpreting the Hawaii State Assessment (Hawai‘i Department of Education, 2004).

For assessment purposes, the teachers looked at a dance video in a classroom where two groups of children danced to music with a 32-beat (4 phases of 8 beats). The teachers looked at the choreography and the final performance. Their assessment included positive observations as well as needed improvements. This video was created for the teachers to see if they know their own dance vocabulary and if they could reveal content knowledge. When Deb asked the group, how else this video could be used, teachers expressed that dance could make math more obvious through grouping, patterning, multiplying, and division. They also mentioned that the 8-count gives consistency and energy. Deb cautioned the teachers to stay away from pop culture music, and get “generic” music for this purpose.

Jolene introduced the music strategy of patterning with writing. She stated that patterning goes

across the arts. Patterning is creating a repeated rhythmic, melodic, or harmonic idea that is instrumental, vocal, or both. The teachers listened, analyzed, and responded to the message of the song “Manana Iguana” from Bobby McFerrin’s *Spontaneous Inventions*. They found that the speech patterns were linked to the writing of the piece. Divided into two groups, the teachers then created speech patterns in eight beats, by adding clapping both hands and on their knees, and adding variety through high and low voices. Their rhythmic speech patterns, or *ostinato*, gave the poems a rhythmic feel. When teachers brain stormed the application of patterning to writing, they expressed that it might improve fluency, punctuation, syllabication, and phrasing. They thought that patterning could also assist in sounding out a word, decoding for comprehension, and might put word and meaning into form.

Vivien introduced the dance strategy mirroring. Starting out with slow music, the teachers mirrored Vivian’s moves first, and then mirror a partner’s moves to faster music. This lesson, which is also a focusing activity, required exact copying. Interest was added by changing the energy level and speed, as well as varied levels of body movements. In math mirroring can be used for learning symmetry, flip and slide (reflection being flip), and geometric and free from shapes. Vivian stated that mirroring is a good focusing activity, requiring concentration skills, since it involves left brain/right brain activities. In classroom management it helps students to quiet down. It fosters coordination and transitioning, and requires constant eye contact. Any student can be placed in a leader position for mirroring. In writing, students might write about what it feels like to be a leader.

Brian Lawton shared that with the use of new development software, the teacher will be able to be more specific toward their use of the strategies and the frequency of their use. He stated that new strategies will be added throughout the year, and that the teachers will have a new file for each week. He informed the group that a new management category will be added to the file, and that their reflections are an important part of the file. He expressed that in this second year the project should go beyond implementation into integration. Deb added that the replication is a significant part of this project, so that it can be taught somewhere else at a later time.

On November 17 the fourth Professional Development for Year II took place from 8:30AM–2:30PM at Keolu School. In a warm-up activity Jolene used the echoing strategy. She included singing, movement, and speech at slow and fast speed.

Guest professor Dr. Barbara Dougherty from the Curriculum Research & Development Group at the University of Hawai‘i’s College of Education, focused on math with the group. She wanted to know what kinds of math issues the students were struggling with. In small groups teachers discussed their students’ math problems, and then shared the outcomes with the entire group. Their students’ learning difficulties in math included:

- Problem solving
- Graphing and how to use it
- Word/story problems (not being able to read and comprehend)
- Reading a problem and explaining the answer in writing
- Measurement: Time
- Multi-step problems
- Remembering
- Children are expected to remember too many concepts/terms
- Number concepts

Barbara reflected that she would be assisting the group with problem solving along with higher level of thinking. She would address measurement, specifically linear measurement, area, and volume. She would be covering number operations, explaining different models, and presenting their bigger picture. Topics of discussion would also include communications strategies in math, and how connections can be made between topics, how much time it takes to learn, and how students can be challenged.

To address Hawai‘i’s math standard #4, Measurement: Fluency in Measurement, Natalie selected the drama strategy pantomime. The teachers reviewed (grade three teachers)/learned (grade 4 teachers) that pantomime is the use of the body to show an action or thing without using words. After each of the 17 teachers/participants gave his/her own meaning of pantomime, the first activity focused on measurement. Here Natalie passed an imaginary length of measurement to the person next to her, who passed it along to the next. When it arrived back to Natalie the measurement had become smaller. She expressed that attention to detail is needed for this activity. After several other measurements were passed around the circle, teachers expressed how this activity required focus and concentration, but that it was also interesting, fun, and playful. Natalie then used pantomime to

visualize the math concepts weight and mass. She passed around an imaginary ball, which became bigger and heavier every time it was passed around the circle. In discussing this activity, teachers felt that attention to detail was essential. Defining the shape of the object, how it was transferred, and facial expressions also contributed to making it a meaningful activity. Natalie expressed that pantomime might be a good carry over to math concepts like measurement.

In her lesson, Barbara introduced height measurement. Each of three groups selected two common and available items, such as a water bottle and a piece of paper. The groups explored what they could compare in these two items. They compared shape and texture, and Barbara directed them how one shape could be changed into another through being topologically equivalent. In this case the teachers created the statement that “the width of the paper is the height of the bottle without a cap.” The next step would be to replace the writing with symbols. Symbolization links the two items together, such as: $P > B$ (paper is bigger than bottle), or $B < P$ (bottle is smaller than paper), or $P \neq B$ (not equal to) and $B \neq P$ (not equal to). Barbara stated: “This is an informal measurement, that has reference points, and if they are not equal, there are four ways of writing it.” Barbara also introduced working with Cuisenaire Rods. The teachers used the differently color rods to measure the length of a table.

Deb brought up the question of how we can tackle relating art and math. She expressed that some links are better for art and math, and felt that Natalie’s measurement and weight pantomime is a good introduction. One of the teachers shared that she noticed that her third grade students’ writing become better when a drama activity precedes the writing.

As a warm-up activity for the afternoon a third grade teacher from Keolu School used the mirroring strategy with classic music. The activity was followed by Barbara’s lesson on measurements and fractions. In what she calls the “magnified inch,” teachers folded a strip of paper (any length) in half repeatedly to create up to $1/32$ inch. Called a continuous model, it is a good mechanism to link measurement to fractions. Teachers then sorted the fractions to their proximity to 0, $1/2$, or 1. They based their findings on looking at relationships, and numerator/denominator for closeness and being apart.

In her music lesson “Music in a Can” Jolene showed the special relationship in the division of time and space. She asked the teachers to divide pieces of paper into halves, thirds fourths, sixths,

eighths, and ninths. The more divisions, the smaller each division became in space. When placing a sound or syllable to each division, it became faster in time. Using names of candy bars with one, two, three, and four syllables, teachers composed series of “candies” with steady beat. By taking the words of the candies into beats, the words were translated into music. In the next step the teachers used simple musical instruments and played their instrument to the beat patterns. They used hand drums, tambourines, finger bells, cowbells, and sticks. This lesson demonstrated a design for dividing time and space as it relates to music, and through this subdivision rhythm is created. Teachers applied the same process in a beat of thirds instead of fourths, which turned out to be a little more difficult, because it was a faster beat.

In Natalie’s pantomime lesson, “What are you measuring,” teachers were asked to pull a name of an object out of a magic box. Each teacher did a pantomime measuring his/her imaginary object (vocabulary). Natalie reminded the teachers that they had to use their bodies to clearly give direction into the pantomime. They needed to establish the size, length, and shape of the object, give attention to details, and express tension and emotion. One of the teachers from Ben Parker School shared that one of six activity centers in her classroom has a pantomime activity. Here students read and act out parts of their reading assignments for the week. Each child visits this activity at least once a week. The teacher discovered that students learn their vocabulary words faster through this pantomime activity.

On November 18 the fifth Professional Development for Year II took place from 8:30AM–2:30PM at Keolu School. One of the teachers from Lā‘ie School presented an introductory energizer using echoing to teach geography. She shared a map of the world and introduced longitude and latitude, North, South, East, and West and oceans and continents. An example of the format she used was with her saying: “I see an ocean north of North America,” and the students answering: “I see the Arctic Ocean.

Vivian used the focusing strategy to introduce the math concept of space. She started by asking everyone in the circle the meaning of space. Next, with dance movements to music, the teachers placed imaginary dots into the space at different levels, and pointed at them with their fingers and other specified body parts. After they drew varied imaginary lines of different thicknesses and levels, they drew imaginary shapes into space and onto table surfaces. While the drawing of dots

represented one dimension, the shapes created two dimensions with surfaces. They “wiped out” the imaginary plane of the shapes. Wiping out the area of different shapes in varied sizes suggests the size of the area within the shape.

Barbara introduced the Geoboard, a math manipulative. It consists of a board with 25 pegs, where the distance between two pegs is defined as a link unit. Rubber bands are used in defining an area on the board. The teachers worked at four different workstations where they, according to specific written instructions, created a shape on each board. They then analyzed different shapes that were drawn on a superimposed Geoboard, and had to find the methods (4) they used to find the area of the shape. Using an overhead projector, each group presented and assessed how they solved the given problems, and summarized the methods they used to create their particular shape. The six methods they used included the subtracting, adding, and counting methods, and the “combining parts to a whole,” area formula, and rearranging (flipping, rotating) methods. All, except “combining parts to a whole,” are official methods used to find the area of a shape. Teachers came up with their own original terms for the methods they used, but Barbara discouraged the use of “creative” terms, since methods have to have a mathematically correct and common language.

Area is a 2-dimensional space that involves length and width. If one more dimension is added it changes to capacity or volume. Barbara suggested that to estimate the volume of a container, first look at its height, then its width. She presented the example of rolling a piece of paper (8 ½” by 11”) vertically and horizontally. The volume of the longer roll is one quarter less than the wider roll. She explained that even though the area of the paper is the same, it does not mean that the volume created from the area is the same. One can, however, assume that wider bases normally hold more volume.

Vivian asked the teachers to imagine that they were inside boxes of varying sizes. Accompanied by music, they used the focusing strategy to draw imaginary lines representing the shapes of their boxes and wipe their surfaces. Teachers created the shape of an imaginary egg, wiping its surfaces and then “scramble” it. They imagine being inside solids, including a ham and a head of cabbage, which was followed by “swatting” a swarm of warps at all levels and angles. Vivian instructed the teachers to use pointing for one dimension, drawing to create a line, wiping to produce a shape, and cutting, scrambling, or swatting to gesture a the space inside a solid. When she called out the number of the dimension, the teachers gestured accordingly. To music and in 64 counts, the teachers then

traveled through the room and mixed and matched all dimensions and their appropriate gestures with different body parts. The goal of this lesson was to have them understand the concept of volume and length, and to give them an intuitive understanding of the structure of dimensions.

In her energizer activity one of the third grade teachers from Lā'ie School asked teachers to “popcorn” (going around the circle) a word of something they would do on Thanksgiving. Teachers then shared a sentence using the word in a very specific activity. In a tableau they visualized their activities and shared them with the group.

Dan and Natalie introduced (to the fourth grade teachers) and reviewed (for the third grade teachers) the scene building strategy. They stressed that the three key parts needed to tell a story, or to communicate an idea in drama, are action, dialogue, and character. Dan and Natalie gave an example by acting out a math scene where they were looking for the answer to $\$10.00$ minus $\$3.35$. In small groups, the teacher created, practiced, and performed simple addition and subtraction scenes, always ending them with a question like “How many do you have?” or “And the answer is?” In the final step each teacher wrote his/her own version of the story the group had created. Dan mentioned that students could write the story first, but he found that writing the story after acting it out produces a more detailed, richer story.

In small groups teachers solved simple math problems and shared their process of arriving at their answers with the entire group. Each group had to come up with three different ways of solving the problems given to them. Barb discussed and demonstrated different, and possibly non-routine solutions for subtracting, adding, dividing, and multiplying. For additions she explained the compensation, partial sum methods, the round number strategy, and the pictorial or representation methods. For subtractions she demonstrated adding up and the lattice method.

Brian shared with the teachers that he needed a better teacher log turnout and feedback. He asked how the feedback process could be made easier for them and if contacting each teacher by phone would be better. He expressed that he knew the teachers were using the feedback log, but he was interested in receiving more accurate information. The teachers felt that a 1-sheet tally for the week would be effective, and that a weekly reminder on Mondays might work.

On January 31 the sixth Professional Development for Year II took place from 8:30AM–2:30PM for Lā'ie School teachers at their school. In her warm-up activity Natalie asked the teachers to

introduce themselves and tell how they were feeling on the inside. She then explained that outside feelings, i.e. texture and surface structure, were one of the day's topics. Natalie removed a small object from a bag and placed it into the hands of a teacher who had her hands behind her back. Only being able to touch the object, she was asked to give three descriptive words for the object. Each of five teachers described a different object, giving three descriptors for each item. The teachers formed five groups of three and, through rapid recall, were asked to name and write the five objects and the three matching descriptors. Each group selected an object and used auto-imaging to "show" the item. They interpreted the objects through different shapes and lines at varied levels and directions.

Deb shared with the group that Natalie had used at least three of the strategies the teachers are familiar with. In small groups they discussed and wrote down which of the strategies she had applied. They predominantly named echoing, shaping, tableau, and symbolic representation, but also mentioned ensemble, focusing and auto-imaging. Teachers discussed in detail when and how Natalie used these strategies. Then Deb asked the teachers which of these strategies they use in their classroom. A third grade teacher shared that she used auto-imaging and tableau before writing assignments. Through the use of tableau her students can recall stories and the sequences of stories better, because they have a richer sense of detail when they act out a story. She shared that the writing in the state test for her class "went through the roof" this past spring, and she attributes it to the drama strategies she uses for writing. She also shared that auto-imaging and tableau work well in her class, when the students have to shift from reading to writing.

While making the teachers aware that this is the midpoint of the research project, Deb also stressed that this is a formative research project, and the feedback from the teachers is vital to its success. The teachers then received a handout listing drama, dance, music, and visual arts strategies as worked out in the pre-Professional Development planning meeting by all artists/mentors, Deb, Lei, Brian, and the writer of this report. Eighteen strategies were named on the list, with some of them still being unfamiliar to the teachers. Deb then informed the teachers that they would become experts of one piece of the knowledge in a larger jigsaw puzzle of strategies. In groups of four, and after reading the strategies, each teacher selected 3-4 strategies to focused on. Teachers worked with a handout showing one column each for: Strategy, know, and need to know. They recorded their selected strategies, and wrote down what they knew about these strategies, and what they thought

they needed to know about each of them. A presentation and group discussion followed in every group. Deb explained that the power of this jigsaw is listening to each other in the group, and hear each teacher talking openly about the strategies. Parts of their sharing included statements such as needing to find the difference between tableau and auto imaging, having to see the connections of patterning in art and math, or realizing that words can have different meanings in different art forms. Deb shared with the teachers that the members of the project who plan the professional development are grappling with some of the same issues. In this jigsaw process, the teachers, if they had selected a visual arts strategy, could also obtain relevant information about these strategies from the available visual artists/mentors. In order to incorporate the teachers' feedback about the strategies, Deb asked the artists/mentors to incorporate this valuable knowledge into their future teaching and mentoring. After regrouping into two or three, the teachers visited tables, where the artists/mentors answered question in their field of expertise. The teachers rotated until they had visited each of the arts areas, and had received answers to their questions.

After the teachers completed examining the individual strategies, Deb asked them to look at the big picture, to see how the strategies make sense collectively and discuss the relationships and differences of all strategies to each other. The teachers came to the conclusion that the art forms column was mixed up, and that the same strategies were used in different art forms, and that all of the art forms included the focusing strategy. They reflected that all of the art forms express their knowledge verbally and non-verbally, that they were about patterns, and all helped in focusing and observing detail. Deb introduced the "big idea" of having only three strategies—representing, structure, pattern—and asked the teachers for feedback, and what they thought if this short strategy list became the model. The teachers brain stormed how this would affect them. They felt that at this point the art forms were confusing, and suggested that the "new" strategies need to be aligned with the art forms in a graphic format. They expressed that organization is a better term than structure, that composing would fit in all three art forms, that the strategies should come first and that the art areas were not important, or creating different groups of strategies without the art forms. Some felt that there should be a category for learning, and where it is happening in the content areas, and possibly developing content strategies versus teaching strategies. Concluding this discussion on the strategies, Deb asked the teachers to pick five strategies from the original strategies list, and check

those that link most effectively to the content areas of math, reading, and writing.

One of Lā'ie School's fourth grade teachers showed a brief video to the group. In it her students demonstrated the use of stretch bands, an activity she learned from Vivien, to create lines and shapes as part of a math lesson. She felt that the stretch bands were effective for understanding 2-D and 3-D concepts. In the discussion that followed, teachers shared that the stretch band became a manipulative, the dance strategy used was shaping, and that the students learned to make connections with math. Deb suggested that the assessment might include the different ways students come up with some of the applications of the bands, and that it is imperative for teachers to know the content, before they apply the art strategy. She also stressed the importance of selecting strategies that make the biggest and strongest impact in learning and retaining learning, because teachers are deeply concerned about learning and understanding. One of the teachers in the group expressed that students retain a lot and apply their newly acquired learning, but it is not always visible right immediately.

In the next section of the professional development the teachers were asked to select a strategy that could be built into a lesson. One group selected scene building and math. Individual members of the group wrote out word problems for addition, subtraction, and weight. One teacher stated that her group had done subtraction with scene building. She expressed that to teach the problem is fine, but in order to see if the students had understood the process, it only comes out in writing the word problem. In the weight problem of comparing grams and kilograms, it was suggested that in comparing the two, students could physically hold a feather and an actual weight of a kilogram. They also thought that dancing might be used to visualize the comparison. The second group selected structured writing and brain-stormed and stated that scene building, dance or the visual arts could assist in student learning.

Deb then introduced the tuning protocol for developing the lesson plan. This process allows each teacher to fine-tune an idea. The protocol includes these four steps: 1) The presenting teacher shares with the group the outline of the lesson, including what he/she hopes will happen in student learning. 2) The listeners ask clarifying questions. 3) The listeners discuss the lesson plan while the teacher sits out and takes notes. 4) The presenting teacher reports back to the group with "here is what I am thinking now." The artists/mentors were assigned as roaming processors during the group work, making sure that the protocol was adhered to. As reflected in the lesson sharing, after fine-tuning,

the teachers in each group were able to develop lesson plans that incorporate better structure, reflected more ideas, and showed finer details. During the remainder of the afternoon the artists/mentors and teachers had some time to work on their mentoring schedules.

On February 1, the sixth (repeat) Professional Development for Year II took place from 8:30AM–2:30PM for the teachers from Ben Parker and Keolu Schools at Keolu School. This professional development workshop basically repeated the one that took place at Lā‘ie School on January 31. Due to the nature of the professional development, the overall content and outcome of the workshop were the same in both, however, some subject content approaches and topics in the activities varied slightly. Instead of reporting on the entire workshop, the writer will only highlight the variations observed, when comparing the two days.

In the warm-up activity, instead of asking the teachers to express how they were feeling (a non-tactile experience), Natalie asked them to move around the library and touch items (a tactile experience), and call out their own descriptors of the tactile surfaces. The “object-in- a-bag activity” remained the same, and so did the auto-imaging, however, Natalie referred to it as tableau. In the discussion that followed, the teachers mentioned only five of the seven strategies the Lā‘ie group named. The included strategies were tableau, auto-image, focusing, shaping, and echoing, not included were symbolic representation and ensemble. Deb pointed out that Natalie’s use of the different strategies helps the kinesthetic learner in learning adjectives for descriptive writing.

After the teachers received the handout with the eighteen strategies in all four art forms, Deb asked the teachers to reflect on their own learning and identify what kinds of learners they were: Auditory, visual, or kinesthetic learners. Teacher expressed that at different times they might use different learning styles, and if they were comfortable with a certain learning style, they might teach that way, too. Deb shared that about eighty percent of learners are visual learners. She also expanded on the four modalities of the arts and their primary vehicles of learning, such as the visual arts being primarily for visual and kinesthetic learners, dance for visual, auditory, and kinesthetic learners, music for audio and kinesthetic learners, and drama for visual, auditory, and kinesthetic learners. Deb expressed that one of the reasons this research project started with drama in the first year of its implementation, was drama’s application for all three types of learners. The jigsaw puzzle development and discussion progressed much like in the Lā‘ie workshop.

Deb then introduced the “big idea” concept, while referring back to the list of the eighteen strategies. She asked the teachers what the purpose of the strategies was, and what the “big idea” represented. She stated that the art forms have structure, and that their key concepts are represented in all four art areas. As in the Lā‘ie PD workshop, the teachers were asked to select five strategies and check in which content area they would use them. Deb suggested they select strategies they were not comfortable with, and use one they might have questions about, or were planning to use within the next two weeks.

After watching the video working with stretch bands, Deb asked the teachers how they would record this activity in the weekly log for Brian. They expressed it would be a shaping strategy for math. Brian might use this information to develop a redesign for the weekly teacher log, with sections for acquiring knowledge, for classroom management, and for teaching strategy.

Just like at Lā‘ie School, Deb introduced the tuning method and its protocol to the group. The teacher then proceeded to develop a lesson connecting a specific strategy to math, reading, or writing, while incorporating the protocol. In the discussion that followed, teachers expressed that certain strategies work better in specific subject areas, such as shaping and auto-image for math, and tableau for writing. They also thought that drama and the visual arts combine well with writing. Deb stressed the importance of using a facilitator for the fine-tuning process when creating a lesson. She felt that the tuning protocol would also be an appropriate format for children to use.

On May 5, the first Professional Development for Year III took place from 8:30AM–2:30PM for the Ben Parker and Keolu School teachers at Ben Parker School. It was the last session for the third grade teachers, and the first for the fifth grade teachers within in this research project. In an energizer activity, Natalie introduced the domino strategy, which lends itself to classroom community building and classroom management, and connects students quickly as a group. A Ben Parker School teacher volunteered as the lead teacher in applying this drama strategy. Gathered in a circle, each teacher calls out his/her name, in a clockwise and then counterclockwise fashion. Teachers then create frozen shapes after calling out their names with more fluency, articulation, and emphasis, as suggested by Natalie.

Lei then introduced the members of the research team and their roles, acknowledged the third grade teachers, and welcomed the new fifth grade teachers to the project. Deb recapped the purposes

and goals of the project for everyone, and introduced a new list of strategies, reducing the previous eighteen strategies to three umbrella strategies of observing, patterning, and representing. Referring to the book *Sparks of Genius: The 13 Thinking Tools of the World's Most Creative People* (Root-Bernstein & Root-Bernstein, 1999), she pointed out that creative people use three tools when integrating knowledge of the mind with knowledge of the body. She elaborated that in everyday life we integrate what we observe, and in education this integration should help children learn better. We also recognize patterns, and by forming patterns when combining simple elements in recognizable ways, children should also become better learners. When we use or represent new learning through metaphors or reenacting, we also gain new learning. When applying simple art tools, such as the domino effect, students can refocus the body and the mind to absorb new knowledge.

In four mixed grade level groups the teachers shared one strategy they used successfully, when they used it, and what made it produce the intended results. Visiting each group, the writer documented these comments from third grade teachers: “My 34 third graders are different learners, and drama helps the restless, hands-on children to focus and be understood.” “My students’ writing has increased. Drama helps them visualize the story. Their descriptive use of words and their writing ability has increased.” Fourth grade teachers stated: “The extra time spent on dramatizing is worth it. The increased use of vocabulary through tableau worked.” “Without this program we would not do any art and we would be confined. Drama was easier to integrate than dance.”

After reorganizing into new small groups, the teachers discussed the unique values the arts bring into their classroom. They expressed that despite overcrowded classrooms the arts presented in this project are doable, and that some teachers would not do any art otherwise. They stated that there is room for art to “un-wiggle” the wigglers in the class that this program was child-focused instead of teacher-focused, and pointed out that the regular reading program is teacher-focused. Teachers shared that the children love to pantomime vocabulary words, and remember these words on a long-term basis. They felt that when students were physically acting out words with their bodies it inspired their writing, while it was also a fun and engaging activity. The teachers thought that the art activities easily fit into their regular lessons, that the proverb “a picture is worth a thousand words” describes the program well, and that it addresses the needs of very active as well as very quiet students. The small groups then shared their views with the entire group.

With Deb's guidance the teachers named the arts strategies they used so far in their classroom, and grouped them under the three new umbrella strategies. Under representing they grouped tableau, story building, tough tracking, and pantomime. Patterning would include echoing, rhythm, visual and auditory patterns, and geometry and measurements patterns in math. Observing would include character and detail. Following this discussion Brian asked the third and fourth grade teachers to answer an extensive questionnaire.

In the third year of the project the visual arts are the art form of emphasis. The artists/mentors for the project are Noni Floyd for Lā'ie School, and Marcia Pascua for Ben Parker and Keolu Schools. Both shared that they would be in the classroom with the teachers once a week, but stressed that they would be artists/mentors and not artists in residency. To teach new content Noni and Marcia started out with the visual arts lesson "When Less is More" using the strategy representing in teaching poetry. When teaching writing to children, Noni stated that their writing becomes more powerful when students move from the big idea (example: birthday party) to a smaller image (putting the frosting on the birthday cake). Noni introduced these four big idea topics: 1) The weekend was relaxing, 2) Shopping can be exhausting, 3) Christmas Eve is exciting, and 4) Field trips can be stressful. Teachers selected one of the topics and wrote a small image of the story. After sharing their small idea image, they wrote a paragraph by "exploding the moment," i.e. describing what happens in that short span of time. The teacher then proceeded to cut and rearrange their writing into a poem, while eliminating unessential words. Without any special order, teachers arranged and glued these words onto construction paper. At this point Marcia presented the visual arts section of the strategy. She introduces an artwork ("La Guernica") by Pablo Picasso, giving an example, how he used parts and rearranged them into his visual composition. Teachers then drew a scene from their poem on a separate piece of paper and color it with any of the materials made available to them. They cut their drawing into smaller pieces, selected the parts most important to them, and created a new visual composition on another piece of construction paper. They then placed their newly created collage next to their poetry and displayed both of them together, for all to view. In reflecting on this lesson, the teachers felt that they could use it for students to get the jest of a story. Some teachers were concerned about cutting up a drawing, and Noni stated that to preserve the original, she normally makes copies, which the students can use for their collage. Reversing the process of introducing the

art activity first and then the writing/poetry was also suggested.

In “What’s my Vocabulary,” Vivian introduced the strategy representing to assess learning. Teachers received color-coded cards with vocabulary words on them, each representing a word from a given vocabulary list. In their freeze/action/freeze pictures teachers acted out their words, first individually, and then in small groups. The vocabulary list included: sizzle, collapse, erupt, undulate, nestle, stagger, collide, crumple, ascend, shrivel, and meander. Others in the group wrote down the verb they thought was presented in the freeze/action/freeze picture as it was performed. In the discussion that followed, the meaning of some words was clarified. Teachers expressed that performing the same word in a small group would be best, and that action words are best for this activity.

In “Story Building,” Natalie applied the strategy representing to community building. She reviewed the three essential parts of scene building: setting (where), character (who), and problem (what), and the roles (director, actors, and cast) in drama. The teachers were to create a moment when there was successful art integration in their classroom. The directors, assigned by Natalie, were third grade teachers. The scene, with a tableau, had to include dialogue and action. In each small group the director shared ideas and assigned different roles to the teachers in her group. While practicing their first tableau, and if needed to improve the scene, the director could move individuals into different roles. The teachers improvised character and dialogue in their scene. They collaborated and exchanged ideas, and froze the same scene for the director, enabling him to improve details and dialogs in the scene. Each groups then performed its scene to the other two groups. While one group showed a scene from studying offshore birds, a second one performed a story from reading, and the third shared building a shelter, also from a reading unit in the class. Natalie pointed out that teachers know their leaders in the class, and might consider selecting them as directors. She also asked them what it felt like to be a director. They replied that they had to fine-tune a lot, and that more was expected of them.

In a brief recognition celebration, third grade teachers received certificate for having been part of the project for two years. The artists/mentors for grade four and five met with appropriate teacher to plan their schedules for the third year.

On May 24, the first (repeat) Professional Development for Year III took place from

8:30AM–2:30PM for the teachers from Lā‘ie School at their school. This Professional Development workshop basically repeated the one that took place at Ben Parker School on May 5. Due to the nature of the professional development, the overall content and outcome of the workshop were the same in both, however, some subject content approaches and topics in the activities varied slightly. Instead of reporting on the entire workshop, the writer will only highlight the variations observed, when comparing the two days.

In Deb’s absence, Lei welcomed the group, and briefly discussed the model of the umbrella strategies representing, patterning, and observing. Dan, instead of Natalie, conducted the domino warm-up energizer strategy, followed by a group discussion of the effect of this particular strategy. After introducing the members of the research team and acknowledging the teachers, Lei continued by recapping the purposes and goals of the research project and by elaborating on the formation of the new umbrella strategies, as Deb had done on May 5, at Ben Parker School.

Instead of forming small mixed grade level groups, each third and fourth grade teacher shared a strategy she had used in the classroom. Two of the third grade teachers had used the scene building strategy, and the other tableau. The first scene building was linked to math. In their parts the students acted out an algebraic lesson, where the middle was missing. The assessment was based on the dialog, movement, and character, and each the students had to write down the process. Through repeated scene building the students understood the process. Using Bloom’s higher level of questioning, the students could not just answer with “no, right, or wrong.” The teacher felt that drama helped in unifying her classroom. She is planning to use drama strategies with her students right at the beginning of the next school year. The second scene building was also linked to math. The teacher expressed that the students were excited to use drama in their division problems. All groups worked well except for one, which did not have a leader. The teacher expressed that, in the future, she will work more with her grouping. The last third grade teacher used dance to improve her students’ writing. In their reading the students had become interested in the Eastern Woodland Indians. While they did well in their tableau, the teacher felt that their writing still left out details she had hoped for. She is planning on redoing the lesson, but possibly using the visual arts as an art form for learning. Reflecting on their classroom experience, the third grade teachers shared additional outcomes. They expressed that by learning content through the arts, the learning became child

focused and students became better problem solvers. They felt that their students had built up more confidence in front of the class, became better risk takers, and learned to be team players. Drama helped some of the second language learners to better and faster acclimate to the class; By having to become a different character in drama activities, they gained more confidence. Overall, the third grade teacher thought that they themselves have become more confident in their use of drama, that they have internalized the drama process, and that it has helped them to become more spontaneous.

One of the fourth grade teachers expressed that she did “a lot of little things that did not fit into a package.” As a first year participant working with the dance artist/mentor, she used dance for student learning in math, particularly fractions. The other fourth grade teacher shared that she enjoyed using dance with math, specifically for symmetry and fractions. She had noticed that her students had become more observant in the fraction lessons, and that students created their own “parts” of fractions. She shared that she was delighted to see the creativity in her students.

Noni and Marcia presented their visual arts lesson “When More is Less,” followed by Vivian’s “What’s my Vocabulary” dance lesson. Dan, instead of Natalie, proceeded to engage the teachers with “Story Building,” in the presenting strategy to build community. In a brief recognition celebration the Lā‘ie School’s third grade teachers received certificates for their successful completion of two years on the project. Concluding, the fourth and fifth grade teachers scheduled meeting times with their mentors for the 2005/06 school year.

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APPENDIX B

The Reliability and Validity of the Data Collected with Three Quantitative Instruments of the Study

The Reliability and Validity of the Data Collected with Three Quantitative Instruments of the Study

In this appendix, we discuss the results of studies of the validity and reliability of three quantitative data collection instruments used in this study. These instruments include the achievement test administered to all Hawai‘i public school students statewide and two instruments that we developed for the study. For copies of the instruments that we developed and for information about the development of all the instruments, see the evaluation report for the first year of the project (Brandon, Lawton, & Krohn-Ching, 2004).

1) Student achievement data reliability

For data on student achievement (which we will report in an addendum to this report after they are made available by the Hawai‘i Department of Education, we analyzed project and school results on the Hawai‘i State Assessment (HSA). The HSA includes nine subtests for Grade 3 and 10 subtests for Grade 5.

The Hawai‘i Standards Test Technical Report (Harcourt Assessment, Inc., 2004) provides HSA

Table B-1
HSA 2004: Reliability for Overall Test and Reporting Categories

Domain	Grade	Cluster	No. of items	Reliability	
Mathematics	3	Total Mathematics	53	0.93	
		Numbers and Operations	23	0.84	
		Measurement	7	0.70	
		geometry and Spatial Sense	11	0.69	
		Patterns, Functions, and Algebra	4	0.35	
		Data Analysis, Statistics, and Probability	8	0.68	
	5	Total Mathematics	52	0.92	
		Numbers and Operations	18	0.81	
		Measurement	9	0.70	
		geometry and Spatial Sense	10	0.69	
		Patterns, Functions, and Algebra	6	0.51	
		Data Analysis, Statistics, and Probability	9	0.62	
	Reading	3	Total reading	48	0.92
			Comprehension Processes	14	0.77
Convention and Skills			17	0.79	
Response			17	0.83	
5		Total reading	47	0.91	
		Comprehension Processes	13	0.74	
		Convention and Skills	15	0.71	
		Response	19	0.84	

reliability statistics. In Table B-1, we show the subtests and the results of the test developer’s reliability analyses for Grades 3 and 5 in Spring 2004. The subtests measuring students’ achievement in reading comprehension and mathematics problem solving are from the Stanford Achievement Test, 9th Edition Abbreviated (SAT9). Students’ scores on the SAT9 provide norm-referenced results for comparing student performance against a nationally-representative norm group. The two SAT9 subtests include multiple-choice questions only. The HSA also includes seven standards-based subtests in reading, writing, and mathematics for Grade 3 and eight for Grade 5. The scores on these subtests are designed to show what students know and what they can do at various proficiency levels. These proficiency levels include *well below proficiency*, *approaches proficiency*, *meets proficiency*, and *exceeds proficiency*. The assessment reports scores ranging from 100 to a maximum of 500. In Table B-2 we show the proficiency level ranges for Grades 3 and 5 for reading and mathematics. All the HSA subtests are designed to produce results showing the extent to which students meet selected Hawai‘i Content and Performance Standards.

Table B-2^a
Proficiency Level Ranges for Grades 3 and 5 for Reading and Mathematics

Strand	Grade	Well below	Approaching	Meets	Exceeds
Mathematics	3	100–199	200–299	300–368	369–500
	5	100–199	200–299	300–381	382–500
Reading	3	100–199	200–299	300–416	417–500
	5	100–199	200–299	300–429	430–500

^a This table was taken from Harcourt Assessment, Inc. (2004, p. 34).

The HSA internal-consistency reliability coefficients (produced by calculating Cronbach’s alpha), seen in Table B-1, show the extent to which the items are consistent with each other. The coefficients have a range of -1.0 to 1.0. The subtests show acceptable reliability levels, with the notable exceptions of Patterns, Functions, and Algebra in each grade. We only analyze total scores in our evaluation; therefore, we conclude that the reliability for the total reading scores and total mathematics scores (across subtests for each of the two subjects) is adequate.

2) *Student Attitude Survey*

Validity. Validity has several aspects. One aspect has to do with the content that an instrument addresses. Content-related validity is demonstrated by showing that the items of a quantitative instrument adequately address the intended content. In the evaluation report for the first year of the project (Brandon, Lawton, & Krohn-Ching, 2004), we described the procedures for developing all

Table B-3
Factor Loadings for the School Attitude Survey^a, Spring 2005

Item	Factor loadings ^b	
	Attitudes toward school	Academic self-concept
22. School is fun.	0.77499	0.25288
2. I am glad I go to this school.	0.77445	0.17340
13. I like being at school.	0.76052	0.17325
17. I like to learn at school.	0.75889	0.23722
4. This is a good school.	0.74620	0.15328
7. Reading is fun.	0.62105	0.23641
23. Math is fun.	0.60583	0.42080
9. I don't like this school.	0.57729	0.33771
3. Reading is boring.	0.57389	0.27360
25. I don't like to come to school.	0.55609	0.31452
12. If I try, I can get good grades.	0.46026	0.17786
15. I am not good at math.	0.08690	0.71360
6. Math is hard for me.	0.11951	0.66615
19. I do not understand math.	0.03655	0.63828
16. I am not good at learning new things.	0.29406	0.62956
21. Math is easy for me.	0.22470	0.62149
11. Math is boring.	0.42756	0.55899
20. I am not a good reader.	0.24205	0.51992
14. Reading is hard for me.	0.21190	0.48723
1. I am smart.	0.27236	0.45422
24. I do not understand what I read in school.	0.20791	0.44035
18. I understand everything I read.	0.33201	0.42770
10. Reading is easy for me.	0.38640	0.41539
26. I can figure out most math problems.	0.24923	0.41518
8. School is easy for me.	0.24195	0.40701
5. In school, I learn new things fast.	0.36196	0.40490

^a Factor structure was obtained using Promax rotation. *Loadings* show the extent to which an item addresses the construct (maximum = 1.0).

^b Loadings in bold type represent the largest value for the item.

the instruments that we prepared for this study. We believe that these procedures are adequate for ensuring sufficient content-related validity.

Another aspect of validity is the extent to which instruments reflect the educational, psychological, social, or other constructs that they are intended to address. This is the construct-related aspect of validity. One way to examine the extent to which the results on the items of an survey instrument give evidence of construct-related validity is to conduct a factor analysis, which separates items into factors (groups) that should reflect the constructs on the instrument.

We conducted a factor analysis of the Spring 2005 results for Grades 3 and 4 on the 26-item School Attitude Survey. This instrument was designed to addresses two constructs—attitudes toward school and academic self-concept. If scores on the instrument are to be deemed valid, the factor

analysis should divide the items into two groups reflecting these two constructs.

With the exception of Item 11, which was developed to address the attitudes toward school construct, and Item 12, which was developed to address the academic self-concept construct, the results of the factor analysis, given in Table B-3, reflect precisely this division. These results demonstrate that the items address the two constructs. An additional calculation showed that the correlation between the two factors was 0.68, which is high. Therefore, we decided to examine scores on the instrument as one primary construct—school attitude.

Reliability. We used two methods to examine the reliability of the data we collected with the School Attitude Survey. The first was the test-retest method. This shows how consistently students respond to an instrument across two occasions. We administered the instrument twice in the spring of 2005 to 37 students in Grades 2–5 at the University of Hawai‘i’s Education Laboratory School (ELS), the first time on a Friday and the second time on the Monday of the following week. We then calculated the total score correlation between the two occasions; the result was .88, which suggests high test-retest reliability. We also calculated the correlation among individual items; they ranged from .40 to .90, with an average correlation of .70, which also suggests high reliability.

The second reliability method we used was the internal-consistency method (Cronbach’s alpha). The results of the analysis conducted for this method showed a Cronbach’s alpha of .84 for the pretest and an alpha of .87 for the posttest, which suggest high reliability. The results of these two analyses provide strong evidence of the reliability of the data we collected. In next year’s final evaluation report for the project, we will supplement these results with a generalizability theory analysis, which is a third way of examining reliability.

3) Student Interest in the Arts Questionnaire

Validity. The 26-item Student Interest in the Arts Questionnaire was designed to measure elementary students’ interest in four art forms—drama, dance, music, and visual arts. A factor analysis was conducted on the Year 2 results to validate the data collected with the instrument. If the data are to serve as a valid indication of interest in the four art forms, we would expect that the results of the factor analyses would show four factors, one addressing each art form. The results of the factor analysis are shown in Table B-4. As was the case with the attitude instrument, the factors reflect the constructs. This suggests that we can make inferences about the art forms. Similar to the School Attitude Survey, an additional calculation showed a high correlation of .80 between the factors. This high correlation indicates that the instrument is measuring students overall interest in the arts. Therefore, based on these results, we do not examine the distinct art forms as separate constructs.

Reliability Analysis. The data collected with the arts interest questionnaire were analyzed for

Table B-4
Factor Loadings for the Student Interest in the Arts Questionnaire^a, Spring 2005

Item	Factor loadings ^b			
	Drama	Dance	Music	Visual arts
5. I like learning how to act in, or write, plays.	0.7713	0.4281	0.3574	0.2622
6. I take (or want to take) acting lessons outside of school.	0.7144	0.4197	0.2843	0.3054
7. Acting in or writing plays makes me happy.	0.7089	0.4393	0.3623	0.3418
3. I like to help write plays.	0.6931	0.3010	0.2501	0.3086
2. I like to act in plays.	0.6828	0.4167	0.3515	0.2528
4. I like talking about plays.	0.6550	0.2313	0.3254	0.3662
1. I like to watch plays.	0.6360	0.2445	0.1670	0.2867
9. I like to dance.	0.2857	0.8451	0.3982	0.2183
12. I like learning about dancing and how to dance.	0.4315	0.8278	0.3842	0.2422
14. Dancing makes me happy.	0.3977	0.8266	0.4934	0.3086
13. I take (or want to take) dance lessons outside of school.	0.4908	0.7743	0.3607	0.2845
10. I like to make up dances.	0.3656	0.7492	0.3323	0.2645
8. I like to watch dancing.	0.3103	0.7039	0.3676	0.2617
11. I like talking about dancing.	0.4850	0.6976	0.4329	0.3257
16. I like to play music or sing.	0.3494	0.4485	0.7961	0.2506
2. Listening to music, playing music, or singing makes me happy.	0.3205	0.4194	0.7536	0.3940
17. I like talking about music or singing.	0.4310	0.3103	0.7322	0.3142
18. I like learning about music or learning to play music or singing.	0.4590	0.4467	0.7276	0.2537
19. I take (or want to take) music lessons outside of school.	0.5361	0.3304	0.5951	0.3227
15. I like to listen to music.	-0.071	0.2061	0.5468	0.2004
26. Drawing or painting makes me happy.	0.3413	0.3232	0.3082	0.8037
24. I like learning about drawing or painting.	0.3810	0.1738	0.3106	0.7734
22. I like to draw or paint.	0.1825	0.2824	0.2843	0.7614
21. I like to look at drawings or paintings.	0.3157	0.2768	0.2958	0.7483
23. I like talking about drawing or painting.	0.5031	0.2359	0.3433	0.7149
25. I take (or want to take) drawing or painting lessons outside of school.	0.4124	0.2939	0.3256	0.7085

^a Factor structure was obtained using Promax rotation. *Loadings* show the extent to which an item addresses the construct (maximum = 1.0).

^b Loadings in bold type represent the largest value for the item.

reliability in the same manner as were the data on the attitude survey. The questionnaire was administered to a total of 37 students in Grades 2–5 at ELS, twice in the spring of 2005, with a weekend between administrations. The results of the test-retest analysis show that the total-score correlation between the two occasions was .93. An internal-consistency analysis (Cronbach’s alpha) showed a reliability coefficient of .90 for the pretest and .87 for the posttest. Together, these analyses suggest that use of the instrument can produce highly reliable data.

We will conduct a generalizability theory analysis of the results on the instrument for the final evaluation report in Year 3 of the project.

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APPENDIX C

Transcriptions of Qualitative Data

Table C-1
 Transcription and Coding of Teacher Mid-Point Interviews, Year 2

<i>Factor</i>	<i>Opinions about professional development</i>
Mentor/ Teaching skills	<ul style="list-style-type: none"> The mentor is beneficial for me because drama is not my strength— music is my strength. However, it has given me different strategies that I have not done or would think about doing. The mentor not only comes in during the drama part but also comes in and stays practically the whole day and looks at the whole child. By doing that, the mentor gets to know the children more, and when we start to do the drama activities, she knows how to motivate and knows what the child needs.
Mentor	<ul style="list-style-type: none"> I like having the mentor come in. Right now we're team teaching. I feel more comfortable having the mentor here until I get better at it. This is new for me.
Mentor	<ul style="list-style-type: none"> I would not be able to do it without the mentor.
Application	<ul style="list-style-type: none"> This year we seem to be really integrating, rather than just learning like last year. They have really been involved.
Mentor	<ul style="list-style-type: none"> The kids love it. I enjoy it because it gives me a new perspective. I am a bit nervous about the observation.
Relevancy	<ul style="list-style-type: none"> It [intensive PD] always seems so perfect in the full day institutes that it doesn't provide an accurate model of what we're going to actually have to deal with—the mentors provide that model.
Time issue	<ul style="list-style-type: none"> It's long, but I think I would rather do a full day than be pulled out for half days. I come back to the classroom with more information to use.
Time issue	<ul style="list-style-type: none"> It's hard because it takes time away from my family and school work. I still have to come in and do lesson plans. I would be more attentive if it was within the realm of the regular school day so I would be able to leave and be back within the school time frame (i.e., 8-2).
Relevancy	<ul style="list-style-type: none"> For the last workshop, I felt there was only a couple of things really relevant to our math curriculum.
Relevancy	<ul style="list-style-type: none"> They're [intensive PDs] somewhat helpful. The last one was mostly math and was kind of redundant. It was improving our math skills, but I didn't really see the connection between drama and math.
Time issue	<ul style="list-style-type: none"> I think it's effective when we are actually participating. My beef is that I think that they could be done in one day. It's tough to be out of the classroom for so many days. Perhaps the second day would be better spent on observation.
Teaching skills/ Time Issue	<ul style="list-style-type: none"> It provides a chance to positively experience something that I wouldn't have done before. The hardest part is that we are so pressed for time that it makes it a lot of work for us. I might suggest that they consolidate two days into one if they can cover all the information.
Teaching skills/ Relevancy	<ul style="list-style-type: none"> I think that the PDs are an excellent way to generate ideas. The problem is that when you teach it to teachers it's easy because we know how to behave. I guess I would like to see more of the modeling with the kids. It's a very controlled environment.

Table C-1
 Transcription and Coding of Teacher Mid-Point Interviews, Year 2 (continued)

<i>Factor</i>	<i>Opinions about professional development (continued)</i>
Teaching skills	<ul style="list-style-type: none"> • It is so much information, but on a positive note, it allows us to pick the strategies that we are most comfortable with and we can just use those. I don't think they expect us to use everything we learn.
<i>Factor</i>	<i>Factors that effect use</i>
Appropriate use	<ul style="list-style-type: none"> • A lot of my trepidation is that I'm not sure how I'm going to use it.
Time	<ul style="list-style-type: none"> • Time— the time that's available. The reading program takes a lot of the time and it comes down to how much I can modify the lessons and be ok with it.
Time/Student characteristics	<ul style="list-style-type: none"> • Time, or lack thereof, and also finding ways to use them and find where they fit. I feel more comfortable with the drama ones. I feel that the music could use some more work. I also feel the class size really dictates how I am going to teach. I feel that I am spending more time than usual trying to keep a handful of kids on task.
Time/ Effectiveness	<ul style="list-style-type: none"> • Time is the major factor. Also, I'm not completely sold that it will affect comprehension. It becomes a low priority with everything else I have to do.
Appropriate use	<ul style="list-style-type: none"> • I am having a hard time implementing it. I don't necessarily know when to use it.
Time/ Appropriate use	<ul style="list-style-type: none"> • I want it to be quick. It seems to be a very long process that takes a lot of time away from other instruction. There needs to be more of a balance. We are very test-focused so the structure kind of goes against the grain.
Time	<ul style="list-style-type: none"> • Mostly it's a matter of time. It could be time in the sense that I don't have time in the class as well as time to plan beforehand before I actually implement.
Appropriate use	<ul style="list-style-type: none"> • Sometimes I have difficulty determining the most appropriate strategy to use for the lesson— just thinking about blending it with what I'm doing. It's not ingrained in my thought process enough to the extent that I could break out of the prescribed reading lesson, for example, and do a music or drama activity. We're taught to follow the book verbatim and that outside stuff should not be used.
Time	<ul style="list-style-type: none"> • It depends on how many stories we have to cover in a given week, which I guess boils down to time. I tend to use primarily drama strategies—I just feel more comfortable with them. I think I implemented it more last year. Because of the curriculum change and this being a testing grade, I have a lot less time.
Appropriate use	<ul style="list-style-type: none"> • There are instances in which I don't know which strategy to use. The mentor makes it look so easy. I haven't quite got the knack to improvise. You really need to plan it out, and it is a conscious decision.

Table C-1
 Transcription and Coding of Teacher Mid-Point Interviews, Year 2 (continued)

<i>Code</i>	<i>Overall effects/opinions of program</i>
Administrative constraints(-) / Student benefit(+)	<ul style="list-style-type: none"> If the reigns were looser on us administratively, it would be an excellent supplement. Actually it would be part of the curriculum. It really attends to the range of students.
efficacy(+)/ Questionable effectiveness(-)	<ul style="list-style-type: none"> I've been trying to mesh it with our reading program. Now that I have been through a year of the program, I have a better handle on how the strategies fit in. I try to do them at least every week. I think a lot of the drama ones are harder to integrate into math but easier for language arts. Music is also difficult for math, but it could be the content of the math as well.
Student benefit (+) / Time (-) / questionable effectiveness (-)	<ul style="list-style-type: none"> I use drama in my writing, and they seem to grasp the concepts. I don't think it is so much of a problem to integrate it rather than the time needed to use it. I wish I could do drama for math everyday, but it just doesn't seem applicable.
Student benefit (+)/ efficacy (+)	<ul style="list-style-type: none"> I think it creates an opportunity to think. It has given me more tools to work with. I'm a lot more likely to use the strategies if I have tried them once and they have been successful.
Time(-)	<ul style="list-style-type: none"> I think that the biggest problem is that it takes quite a bit more time to teach a lesson using the program, as opposed to using it the traditional way.
Alternative teaching style (+)	<ul style="list-style-type: none"> I like the strategies— it provides a nice alternative that not only provides a break from the monotony but also is effective at getting them to grasp the information.
Questionable effectiveness (-) / Student benefits (+)	<ul style="list-style-type: none"> I think it can be an effective program. I don't think we've been able to do as much as I would like to do to be effective. We do have a pantomime group as part of our reading. The students have developed the ability to use more detail as a result. It's not only an out for the children from the book work, but it allows them to use a different part of their mind in a positive way.
Questionable effectiveness (-) / alternative teaching style(+)	<ul style="list-style-type: none"> I think that at its current level of implementation, ok. I admit I could be doing a better job implementing more. But if it helps one or two kids who can only learn using drama. For those kids it is definitely worth it—this may be their only way of getting it. I think that if it is implemented more regularly, I think it could impact HSA scores.
Questionable effectiveness (-) / Alternative teaching style(+)	<ul style="list-style-type: none"> With the activities that we do, I'm not convinced that they are going to help the math and reading comprehension. I think it's good for the kids because they get something different, but I don't think they'll be able to transfer it.
Student benefits (+) / Questionable effectiveness (-)/ efficacy (+)	<ul style="list-style-type: none"> Especially with writing and reading, they are able to produce better quality writing and better reading comprehension. However, I just can't see how the students are going to be able to use these skills for the HSA (at least based on the individual child). I do think that the program is more effective this year.

Table C-1
 Transcription and Coding of Teacher Mid-Point Interviews, Year 2 (continued)

<i>Code</i>	<i>Effects and observations of program (continued)</i>
Questionable effectiveness(-)	<ul style="list-style-type: none"> I don't really see the relationship between what we're doing and increased test scores. I see the relationship of what they're producing in class and they're more outgoing, more interested in drama and acting, but I don't see, based on the structure of the test, how the students are going to improve. (i.e., we can't do a tableau during the HSA.)
Student benefits(+)/ Questionable effectiveness(-)	<ul style="list-style-type: none"> There is higher interest and attention from the students. Behavior can be a problem depending on the activity. Not necessarily the program, but rather the nature of kids. I don't think it promotes good or bad behavior. I would hope that it effects the HSA, but it seems more like a nebulous type of desire. I'm not sure how the two are going to mesh.
Student benefit (+)/ Alternative teaching style(+)/questionable effectiveness (-)	<ul style="list-style-type: none"> It seems to improve the students' confidence. I think it provides a nice break from tradition. I think it is as effective as the traditional way of teaching, but it seems like it's a hard stretch to think that improvement will be due to just the program. I do think it will have some affect on student performance. I don't necessarily think that it helps or for that matter hurts behavior.
Student benefit(+)	<ul style="list-style-type: none"> The kids have become more expressive. It helps them write better—it organizes their thoughts.
Student benefit(+)/questionable effectiveness (-)	<ul style="list-style-type: none"> The writing seems to have improved, which also lends itself to understanding and comprehending the reading more. The kids really enjoy it, and I feel more comfortable since last year. I think if the program was more incorporated into our regular curriculum it would affect student test scores. But even at its current level I do feel that scores will improve.

Table C-2
 Transcription of Teacher Focus Groups, End of Year 2

<i>Primary strategies used</i>	
	<ul style="list-style-type: none"> • I used tableau a lot— echoing, pantomime, and most of it's dramatic drama. • Not so much music. Occasionally, we would use patterning. We would use defining time and space but as a continuation. We did tableau a lot. • Pantomime, Auto image, scene building, and tableau. • I can't say which one was primarily used because it seemed like this year we just tried to flow a little bit of each of the strategies to kind of get comfortable and see how they fit in so I can't say any one strategy was used the most. For dance we tried to do the shaping and incorporate the shaping into almost everything we did because we knew it. To me, I knew we had to focus on dance, but it came to me like kind of an overview. Well, let's try this, let's try this, let's try this. We kind of tried them all out. • Tableau, pantomime, and just kind of acting out. • Tableau, pantomime, and a lot of the spontaneous dialogues.
<i>Category</i>	<i>Reason for use of specific strategies</i>
efficacy/ environmen- tal con- straints	<ul style="list-style-type: none"> • I just thought it (tableau) lent itself easier to incorporate into the daily activities. It should be used for math or language arts. We used it a lot for language arts. We did dance whenever Vivian would come. But some of the strategies were difficult and the classrooms just has a blocked off space in there. So it's hard to do a lot of big movement activities. If we can do something that doesn't take up a lot of space, then it made it easier as far as management wise.
Classroom manage- ment/ stu- dent bene- fits	<ul style="list-style-type: none"> • For our class it was mainly a lot of echoing for transitions, especially used in transition for redirecting the children. Language arts we did. We used a lot of pantomiming. We went into the tableau but not too much more. Well, for me it was the language arts. It's a pretty structured time, and it doesn't lend itself to a lot of outside activities or incorporating art. So, I guess one of my comments is that being part of the ARTS FIRST gave me an excuse to use it you know in my group, and the children learned a lot faster, picked up the vocabulary words, were able to turn it around, and showed it in a pantomime. They came up with their own vocabulary words, or they picked words from the stories that were part of the vocabulary list that they didn't understand. They wanted to pantomime so the extension was there on the ownership being given to the children.
Familiarity	<ul style="list-style-type: none"> • They were the ones we were familiar with. We learned this so that helped.
Familiarity	<ul style="list-style-type: none"> • That's what we were taught. That's kind of our main focus.
Familiarity	<ul style="list-style-type: none"> • I found two that he showed in class so it made it easier for us to do it on our own and teach. The students seemed to be able to follow through on those activities with those strategies. They seemed to have understood what those strategies were and be able to integrate them into other subjects better.
Familiarity	<ul style="list-style-type: none"> • The reading and the writing were easier to try to incorporate than the math. But we were pretty conscious of that and we tried to say, okay we're getting better at this so try to see how we can do it with the math.

Table C-2
 Transcription of Teacher Focus Groups, End of Year 2 (continued)

<i>Category</i>	<i>Reason for use and use of specific strategies (continued)</i>
Familiarity	<ul style="list-style-type: none"> I think the drama is easier for me to incorporate, but I think it could also be the dancing that I'm so used to. The way I used drama in the classroom, the shaping, the dancing portion, and the way it was taught this year.
efficacy	<ul style="list-style-type: none"> For me I was the most comfortable with because we did a lot of it with the mentor. We were able to feel more comfortable doing that. I think the dance one wasn't as applicable.
Efficacy	<ul style="list-style-type: none"> I guess it's more alike because tableau is like the end result. Like where it's kind of putting everything together. You kind of, I guess, teach all the other ones too but not really in depth.
Time	<ul style="list-style-type: none"> For me it was mostly for general reading time like after a story. I think one of the reasons why we don't go really heavy in the scene building is because it really takes more time. We just keep changing one story after another so you're not with the story for a couple weeks where you can do all those.
Time	<ul style="list-style-type: none"> Like not with a novel you can take it chapters and build it, but you have to go on to the next story. I think when we have one week in one day it's just that we're pretty much testing. So you really only have the 90mins to go through the program and the added dialogue. For this year, it was just that we had work and had to do a lot of workshops.
efficacy	<ul style="list-style-type: none"> Math I did the easiest. I did like echoing for like the multiplication and the memorizing.
Student benefit	<ul style="list-style-type: none"> I like acting out the word problems because the visualizing helps them figure out what they're supposed to be doing or what they're asking.
Efficacy	<ul style="list-style-type: none"> For me, I was the most comfortable with because we did a lot of it with the mentor. We were able to feel more comfortable doing that. I think the dance one wasn't as applicable
Familiarity	<ul style="list-style-type: none"> I guess it's more alike because tableau is the end result—it's kind of putting everything together. You kind of, I guess, teach all the other ones too but not really in depth.
Time	<ul style="list-style-type: none"> For me it was mostly for general reading time like after a story. I think one of the reasons why we don't go really heavy in the scene building is because it really takes more time. We just keep changing one story after another so you're not with the story for a couple weeks where you can do all those.
Time	<ul style="list-style-type: none"> I think when we have one week in one day it's just that we're pretty much testing. So you really only have the 90 minutes to go through the program and the added dialogue. For this year, we had to do a lot of workshops.
Efficacy	<ul style="list-style-type: none"> The times we used it was actually when the mentor would come in, which was every week. Once a week on as a weekly basis so that time was set aside to do that. We'd do some, trade off, and I would do some of it.
Familiarity	<ul style="list-style-type: none"> Mostly on the reading part , but we started doing a lot of math towards the end so maybe about 50-50 because we did a lot of math. The math we did a lot of the shaping. For reading, we did a lot of writing for the reading because we would do reenacting of the stories. We took our books, our story books, and reenacted it so as far as the dance part and then we wrote about it, which was the writing part.

Table C-2
 Transcription of Teacher Focus Groups, End of Year 2 (continued)

<i>Category</i>	<i>Opinions about program feasibility</i>
Teacher dependent / Program dependent	<ul style="list-style-type: none"> If you were to use the reading program in it's fullest intent the way it's prescribed, then there would be no time in your reading block to do anything else but what it said to do by block, by block, by block, and by block. And some teachers do it that way and that's the way the program is used or intended, but a lot of teachers kind of incorporate their own lessons or put their own spin to it, and I think if you put your own spin into it you can use some of these drama and music activities. The program itself, the way it's prescribed, is very time consuming and very lengthy.
Positive feedback	<ul style="list-style-type: none"> I think it also depends on, I don't know if I want to use headstrong, but I will do it anyway, and I think of it as best practice. I take the children who are in my class, and I will continue to use the strategies because I've seen it work this year. I've seen it in the past, but I've used it more and on a regular basis this year, and I've seen children who I was actually losing (these are my average readers) them because they were losing interest. Doing pantomiming, teaching them how to do a tableau, and showing the story line is a new spin. It brought life back for them, and it brought the story to life. Seeing that and having proof this year I would continue using it. Because for me it's where we as teachers professionally say yes we will use the prescribed program and then look at the children that we're servicing and say "you know what? What is best practice?" If this is the best way to reach this particular group of children, then by all means I'll go ahead and use it.
Positive feedback	<ul style="list-style-type: none"> The math too. The strategies we used for math are really good. In fact even though we said goodbye yesterday, I still am going to keep using it. I think that those skills and strategies are the best for the group of children at this school and can be used every time, all the time, for them to get it. I will do it every year.
Positive feedback/ Teacher dependent	<ul style="list-style-type: none"> I know my ideas have changed from the beginning. It was like, okay where am I going to fit you in at? Or I have to make up something for you to fit in. I think that was the hardest thing. It was like well, how are you going to fit drama in math? That was like a big step I think for everybody, and then Dan had to really kind of think about it. He was really creative. It seemed like once we started doing something then it was "oh yeah," this is a good way for them to remember something in this area. I think it's becoming more natural to be able to use that form and whatever subjects.
Positive feedback	<ul style="list-style-type: none"> I actually like that whole system Mr. Dan used. Everything was you know, you introduce, you model, you let them go plan, strategize, then you share, and then you summarize. The whole step by step way that he does it. I find I use that now in everything I do not just in drama. Just the way that it's done, it's easier for me to teach, just in the step by step way that he presented drama.
Focused effort	<ul style="list-style-type: none"> You have to make a conscious effort to incorporate it. It can be incorporated for sure. I don't think you have to be a rebel teacher to do it. Just think "oh, okay, how can I make this work?"
Focused effort	<ul style="list-style-type: none"> I think you just have to think a little bit more and be a little bit more conscious to make a conscious effort to incorporate it. For me I can go weeks and months without. Like oh wow I guess that should've been you know incorporating strategies cause they're not natural for me.
Time	<ul style="list-style-type: none"> The second half was easier because they picked out a small component of our program to get them ready for next year so it's a little more time. I think if we did this right from the start there would be, and there's not enough time in the week to do it as well as you want to do it.

Table C-2
 Transcription of Teacher Focus Groups, End of Year 2 (continued)

<i>Category</i>	<i>Program feasibility (continued)</i>
Program dependent	<ul style="list-style-type: none"> Trying to fit it in and getting them focused back. You know like taking them from that activity and now incorporating it with writing or something. I think it was hard.
Program dependent/ time	<ul style="list-style-type: none"> I think we were pulled out so often this year too, and it was all different workshops so we're trying to incorporate all these different things from all these different workshops. There was so much information that we forget a lot of things that we learn that we wanted to use. When you're in the workshop and you're learning about different things and you have all these ideas to implement, you get back to the classroom and it's trying to fix up everything that happened while you were gone and trying to figure out what actually do you have to do in order too because there's such a time issue.
Time	<ul style="list-style-type: none"> I think because we didn't have a consistent year where we were in the class everyday and then we were pulled out here and pulled out there. I think because it's very disjointed so you didn't really have time to do it, you know?
Program dependent	<ul style="list-style-type: none"> I think it's probably better when you have more training. If we stuck to drama I think we could've done a lot better. It's hard to say because we got pulled out from our grade so much then it's like learning the new curriculum and trying to implement the arts.
Time	<ul style="list-style-type: none"> It takes time away from the curriculum we're supposed to be strict on time wise so it did take time away from that part.
Student characteristics	<ul style="list-style-type: none"> There were management problems, getting everybody to do it, and organizing, is what we had to kind of overcome.
Teacher dependent/ Time	<ul style="list-style-type: none"> I think now that I know what it's about I have a better idea and I think I can do a better job next time because I know what to expect. I think I can maybe add a little bit more or do it more often. That's what I think I didn't do. I didn't do enough I think. We did it once a week, but I think there's a lot of pointers that we learned in class and at the workshops that I could've fit in my class and they would've been short things to do, but I blank out and during the day I forget about it. I know I say "yeah, I could do some of these things like short exercises, quick exercises, fast exercises," but I just don't remember to do it. It's like I just blank out. The day is just too compacted with stuff we're forced to do and that's it. Hopefully next year I'll put it in, and I can put some more of the same things.
<i>General program benefits</i>	
Student engagement	<ul style="list-style-type: none"> Well, for my group the behaviors improved, listening skills improved, their ability to transition is a little faster. They liked the echoing so it improved behavior in the classroom.
Student confidence	<ul style="list-style-type: none"> It's [behavior] been really bad this year. It took a little while to get the kids comfortable with doing things in front of the group, such as tableau, even when they were doing it as a group, a small group. Some were still a little uncomfortable with it. Once we got going and they came out of their shells (even the shy ones came out of their shells) they were able to do their tableaux, pantomimes, or whatever in front of the group and not be embarrassed about it.
Student engagement	<ul style="list-style-type: none"> I think it got them more excited about the leaning. It helped them to remember.

Table C-2
 Transcription of Teacher Focus Groups, End of Year 2 (continued)

<i>General program benefits (continued)</i>	
Student assessment	<ul style="list-style-type: none"> You could really tell who understood the concept and who didn't. The standard, especially the math one. You could tell who could create their own math, social studies, and reading problems from doing it. When they have to create and problem solve on their own or in groups, you really find out who understands and who doesn't. They either get it or they don't when you're done. I found mostly that they, because they understood, were able to write more when they had to write word problems for math and when they had to write stories in writing. They understood the stories better from doing drama and were more internalized.
Student assessment	<ul style="list-style-type: none"> When you had to go to the paper and pencil it in, it gave them a thinking basis of what to form and more of a conceptual background before they actually did the paper. Since we tried to end something concrete to be able to show yes, you understand this so you learned this. It does kind of transfer back to paper and pencil but yet they were able to come up with ideas.
Student engagement	<ul style="list-style-type: none"> Because the children live here, they have a very limited background so you have to do things like field trips and drama and what not or they have a real difficulty taking their own experiences writing it down because there's nothing there.
Student assessment	<ul style="list-style-type: none"> Kind of learned who has maybe like a little bit different personality and how some kids can be shy, but yet when it's time to come on stage, it's like oh they're okay yeah. You wouldn't expect that they would say something or do some kind of action so that's kind of fun to see kids in a different light that you wouldn't expect. They surprise you sometimes. The really loud mouth kids all of a sudden shrivel up because they cannot say something or preform. It's made me recognize the students' strengths and weaknesses.
Student assessment	<ul style="list-style-type: none"> You find out who knows, the children that I didn't even think knew how to problem solve because when they do pencil and paper it looks like that can't even do it, but when they were put in a "hands on" situation where they had to problem solve with each other, they could do it. So, yeah. To us it was surprising because it opens up a whole avenue for students that they don't usually react.
Subject internalization	<ul style="list-style-type: none"> I think it was remedial in the sense that they already knew it. It was internalized in the sense that they have something that they can use to remember the activities because they've learned the different things we were teaching them using the exercise. However they internalize it is the difference. The kid can learn something but they might not remember. I think my students remember a lot of the different things that they've done. In fact I've asked them so they wrote down all the stuff that they learned— what was their favorite, were there any things that they remembered— and I was amazed that they couldn't at the beginning.
Subject internalization	<ul style="list-style-type: none"> I think too the ones that you took to talk to from my class were the top of the class. For them I think it was remedial. For others, I think that like they said even though we've already covered it, it was one more ----- to say not only have they learned it, but now they'll remember it. That was the difference.

Table C-2
 Transcription of Teacher Focus Groups, End of Year 2 (continued)

General program benefits (continued)

Student confidence	<ul style="list-style-type: none"> I think for me it wasn't the behavior that I saw that got better, but it was some of their confidence that improved. Their confidence to stand up and take a risk and act a little silly sometimes. Some of them do that all the time for fun, and others I can see them beginning nervous and by the end they got a little bit more confident around each other and around me.
Student assessment	<ul style="list-style-type: none"> I think it is for me. It's kind of like for some kids you know that this is the model that you're going to expect. You know what I mean? A lot of them were, especially the really active ones. Once you get them moving it can seem like they're not really learning, but you can tell from how they're acting that they comprehend it or at least a part of the story.
Student engagement	<ul style="list-style-type: none"> For my kids, it's kind of brought reading alive to them. They're sitting so long in their seats, and it's actually getting them engaged in the reading. Actually it's kind of teaching them what they should be doing in their homes. You have to show them what it looks like in order, so I told them "when you do tableaus these are the things you're supposed to be visualizing in your head as you read a story" so that they actually see what they're supposed to be.
Student engagement	<ul style="list-style-type: none"> Well, it just makes it more interesting you know. Even when you transition the children, I throw in something to do with the arts, like move this way or visualize. The kids are all engaged in it. Most of our kids are sitting for five hours without much movement expected for them to move from class to class. Like even today when I threw it in you know like after you were done we kind of did some activities. The kids seemed like they were quiet, and they were all engaged. They were more focused.
Student engagement	<ul style="list-style-type: none"> Behavior, like they're all engaged, so you don't really have to like "come on stay on task, come on stay on task" because they all want to be a part of it.
Teacher efficacy	<ul style="list-style-type: none"> I think because there's no time, and we had that 90 minutes block, we could now integrate it. We don't have to stop seeing the separate entity. You can just integrate it where you feel it fits.
Student engagement	<ul style="list-style-type: none"> For my kids, it's kind of brought reading alive to them. They're sitting so long in their seats, and it's actually getting them engaged in the reading. Actually it's kind of teaching them what they should be doing in their homes. You have to show them what it looks like in order so I told them when you do tableaus these are the things you're supposed to be visualizing in your head as you read a story so that they actually see what they're supposed to be.
Student engagement	<ul style="list-style-type: none"> Well, it just makes it more interesting you know. Even when I transition the children I throw in something to do with the arts, like move this way or visualize. The kids are all engaged in it. Most of our kids are sitting for five hours without much movement expected for them to move from class to class. Like even today when I threw it in you know like after you were done we kind of did some activities. The kids seemed like they were quiet, and they were all engaged. They were more focused.

Table C-2
 Transcription of Teacher Focus Groups, End of Year 2 (continued)

<i>General program benefits (continued)</i>	
Student en- gagement	<ul style="list-style-type: none"> • Behavior seems to have improved, like they're all engaged so you don't really have to say, come on stay on task, come on stay on task—they all want to be a part of it.
Student en- gagement	<ul style="list-style-type: none"> • I think our program does get kind of monotonous for the kids so when you add drama in there then they actually connect with the story and with the characters. They can actually imagine what the characters were.
Student con- fidence	<ul style="list-style-type: none"> • Well, after awhile I think they got more confident in performing in front of people. In the beginning, you could tell they were hesitant. Towards the end, they wanted to perform.
Student con- fidence	<ul style="list-style-type: none"> • I think it affected all of them. The ones that are loud and not shy did well, and they even went over. The ones that are shy participated, too. So everybody I think moved up a little bit.
Student as- sessment	<ul style="list-style-type: none"> • Well, I learned I could see who were more animated than others. It brought that out, otherwise I knew they might be, but it wouldn't have shown. I wouldn't have seen it. What else? Let's see... I could see the students participated. That I thought they might not have, but they did. I think attitudes changed a little bit, as far as those who are hesitant. After awhile they saw everybody else doing things, and they got into it.

<i>Opinions about effect on achievement scores</i>	
	<ul style="list-style-type: none"> • That's hard to say. I think it's made the kids more focused now whether that transferred when they took the test. I don't want to bet the farm on it. I would say you know if the kids as a whole did well, for example on the writing portion, then I can say oh well, you know we did do a lot of tableau. As soon as we did tableau we went right into writing so maybe there's a link there. • I think it can be if I thought about it earlier. I mean I get a lot of ideas when we're at the workshop, but when I come in the classroom, I'm like okay I gotta do this, this, this, and this. • I don't think I used it enough to make that. Thinking about it, I think it would help the kids understand things better, especially ones that are kind of low. That's only my opinion. The reason why I say that is because there are certain strategies that the kids, if we used it correctly, are going to apply on the testing. • I noticed that after we did an activity with drama, the writing was better. If I made it separate and there was a question inside of their comprehension test, it wasn't as good as what happened after they did the activity, you know? • The think the writing will improve. • I noticed that after we did an activity with drama, the writing was better. If I made it separate and there was a question inside of their comprehension test, it wasn't as good as what happened after they did the activity. • I couldn't say for sure this would help, but I would think it would. I'm sure it had to help. How much? That I wouldn't know. • I don't think it would have an affect in my opinion. I don't think I'm diligent enough to make it have a big factor.

Table C-2

Transcription of Teacher Focus Groups, End of Year 2 (continued)

Opinions about effect on achievement scores (continued)

- I think if we use it on a regular basis, it would make a difference. The reason I'd say that is I'm not thinking so much the language arts but the math components because this is the first year I gave. I'm in the third grade so this is the first time I even saw the test or even the practice test. I did not have any idea what was on the test or how much of it was on the test so math is very sporadic. It's one problem of this concept and two problems of that concept, and we don't know which one is going to count. Even if it's one problem, they, the children, need to understand the concept and that was a struggle for me because many of the concepts are at the end of the book. If you go at the rate that you're supposed to go we wouldn't finish or cover all the concepts. It was picking and choosing, jumping around the book, and teaching the concepts out of sequence or however. What we did was Natalie came in, took a look at what we were doing that day and she would use it in drama on the Wednesdays that she was here. The concepts that she covered and she did with the children were able to transfer over to the test because I was telling her that I was looking for three concepts in particular. Most of them got it as I walked around the room so it was cool you know. The problems on the test don't ask any of the children to know one concept. They combine two or three concepts so if they don't understand the basic concept, then they won't be able to do the others.
 - I think it's possible to have that power for some kids. I think that you know we're all so different so we have to try all different things, all different kids. For a certain group of kids it could be better, and for others maybe not. Like anything we do, that's why we have to do a variety of things so hopefully we can learn different types of learning. I don't think it would hurt anybody to do it. I don't think its detrimental. The only thing is the time that it takes. For one kid, he could learn something in 10 minutes and move on to the next. These strategies can be time consuming, and it could take a whole lot longer. For that one kid it's not detrimental. It's just that he could've learned 5x as much in the time that the others learned, you know? I don't know. I'm not 100% sold.
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Table C-3
 Teacher Professional Development Survey: Open-Ended Responses

Teacher	<i>Based on your experiences this past year, what are the three top lessons you learned about integrating the arts into your classroom curriculum? This may include specific strategies or more general lessons such as better ways to use the ARTS FIRST program.</i>
1	<ul style="list-style-type: none"> • First, it is more than ok to integrate the arts back into the curriculum. • Integrating the arts reaches all students. • There is a wealth of knowledge and retention by integrating the arts.
2	<ul style="list-style-type: none"> • Scene building-- dialogue, movement, character • Tableau • Auto-image
3	<ul style="list-style-type: none"> • Tableau/Auto-image • Scene building • Pantomime
4	<ul style="list-style-type: none"> • tableau • pantomime • auto-image
5	<ul style="list-style-type: none"> • Drama and how it enhances reading and writing instruction and learning. • Math seem the most difficult to tie in. • How the students learning has increased by using a more kinesthetic approach.
6	<ul style="list-style-type: none"> • Movement and kinesthetics improve student achievement and, most especially, student motivation in relation to learning. • Learning becomes student focused and students take ownership of their learning. • The arts can be integrated easily into curricula and is an integral part of a child's education.
7	<ul style="list-style-type: none"> • Used dialog and pantomime to improve writing. • Used echoing to improve memory and comprehension of concepts in math and reading. • Used tableau and scene building to increase comprehension.
8	<ul style="list-style-type: none"> • The lessons are not elaborate. • You don't have to be an artist to use the strategies. • Arts can help all students learn.
9	<ul style="list-style-type: none"> • It is important for the students to work together. • When the students physically move, they tend to remember more. • It takes time to integrate the arts strategies.
10	<ul style="list-style-type: none"> • Students retained what they were learning. • They were engaged and motivated in learning. • They developed confidence in themselves.
11	<ul style="list-style-type: none"> • Using the art strategies helps students in better understanding both reading and math. • I see a different side of individual students, and personalities change that surprise me.

Table C-3

Teacher Professional Development Survey: Open-Ended Responses (continued)

Teacher	<i>What are the three most important factors contributing to your decisions regarding the use of the arts in your curriculum in the future?</i>
1	<ul style="list-style-type: none"> • The strategies are multi-sensory and touches all children. • The time frame in using some of the strategies, such as the energizers or refocusing strategies, only take 5-10 min. • Fun for the students.
2	<ul style="list-style-type: none"> • Good Team Building-- GLO 2 • Problem Solving GLO 3 • Long Range Internalization
3	<ul style="list-style-type: none"> • Children are excited about "doing" things with their bodies. • Children develop more confidence in "performing"-- being in front of a group. • Creativity is fostered. • Students work together-- sharing ideas and cooperating.
4	<ul style="list-style-type: none"> • Children enjoyed it-- learned to work together. • Helped children remember better because they were actively involved. • Brings events to life for children-- will be good to teach standards to compare and contrast life now to before.
5	<ul style="list-style-type: none"> • Students are excited about learning. • Seen the academic gains for students. • Passing on the knowledge to more teachers so all students can benefit. • Having a mentor go over and beyond to help me and my students.
6	<ul style="list-style-type: none"> • Time-- strategies are quick, yet highly effective. • Practical-- strategies are easy to implement (even in areas that are not a teacher's forte). • Mentor-- strategies were modeled then done with me, and finally independently, with mentor giving support and tips.
7	<ul style="list-style-type: none"> • To engage students in learning. • Help improve comprehension. • To build confidence in students who generally shy away from the group.
8	<ul style="list-style-type: none"> • The lessons can be quick (5-10 min. long). • Don't always require much physical space (echoing, shaping for example). • The students enjoy the arts and the arts may be the only way to "reach" some students.
9	<ul style="list-style-type: none"> • Comfort with teaching the arts. • Time to develop lessons to incorporate the arts. • Support from the mentor artists.
10	<ul style="list-style-type: none"> • One of the most important factors contributing to my decision to use First Arts in the future is students were able to make connections from what was taught to things around them. • Second, they could make inferences which helped them understand different situations. • Third, they become better thinkers and problem solvers.
11	<ul style="list-style-type: none"> • I see goal results. • I believe in the ARTS. • Makes learning fun.

Table C-3
 Teacher Professional Development Survey: Open-Ended Responses (continued)

Teacher	<i>What is your overall opinion of the ARTS FIRST processes and materials? How might the ARTS FIRST project better serve you and your students?</i>
1	The ARTS FIRST project is the best project I have seen and participated in many years. Bringing the arts back into the classroom and teaching the teachers how to and when to use the arts is so beneficial. ARTS FIRST project needs to continue! Thank you.
2	Excellent Processes, Helpful Materials (lesson plan drawn)
3	Keep strategies simple; Would love to have a Visual Art Experience; I like the way that it was set up as a 2 year project. Dan was great--we needed him--to see him give the lesson he gave--the 2nd year he gave us idea--always willing to help--so non-critical of my inexperience.
4	Processes were well-organized; Materials useful; Don't find 3 columns in lesson plan create, perform, respond helpful. Too time consuming for me to do. I would like to have the visual arts experiences. I think if we had included the 4th and 5th grade teachers from the beginning it would help them so they could continue to use drama, music, and dance in 4th and 5 th grades. Then we could really see if the arts helped the students when it was continued in the classroom.
5	My overall opinion of the process and materials is that it is a valuable tool to have to integrate into all subject areas. Being able to go through the process as a student, have the mentor teach it to students, and then co-teach with me made me feel more confident to use the strategies more often. I feel the project can better serve me in allowing me to learn the visual arts where I'm least knowledgeable and confident.
6	It is a tool that not only helps teachers integrate (and not lose) the arts, but most importantly helps students enjoy learning and improve student performance.
7	Overall I felt that the ARTS FIRST process enhanced my teaching. It provides me with strategies that are easy to use and fun for the students. Most students enjoy doing activities. It's fun to learn!! I think I would like for a mentor to come in periodically to review strategies with the teacher.
8	The ARTS FIRST strategies are quick and easy to use. They don't cause disruption amongst students and can be used for content learning and classroom management. The ARTS FIRST project might better serve me and my students by learning more strategies so that we don't use same ones over and over.
9	At first the processes and materials that were presented were a bit confusing. I didn't know the overall goal or what was expected of me. It has become a little clearer over time. It would help to have continued support from the mentor artists.
10	I really appreciated the time Vivian spent with my students. They were excited and motivated. I think the process and materials were informative and helpful. I like the modeling of the different strategies that were presented during our workshops. It helped me to see and apply the strategy a lot better.
11	Thank you! I think it is a great project. I wish I could be a part and learn the other two topics, visual and drama.

Table C-4
Transcription of Student Focus Groups

Favorite part of the project?

- When we do the birds in the trees.
 - It's funny, and we do cool stuff like focus on her finger.
 - We do dominoes but with clapping.
 - I think it was fun because you get to tableau, and you got to make a picture.
 - I would miss it if it was stopped.
 - I like it. I feel more comfortable.
 - Acting stuff out.
 - Tableau.
 - The teachers seemed to have fun doing it.
 - They [teacher and mentor] always laugh.
 - Acting.
 - Drawing in space.
 - Going to planet titan (one of saturn's moons).
 - We did plays with number problems and act them out - this was helpful.
 - We had to figure out what everybody's problem was (i.e., division, multiplication).
 - We did beginning, middle, and end.
 - We did some acting out of our reading, but we did more math than reading
 - We did shapes and people had to guess.
 - The Irish dance, we would tap sticks around the room.
 - We did math and fractions.
 - We did Ali Baba and Winnie the Pooh.
-

Least favorite part of the project?

- When she gets mad because everybody is not listening.
 - Sometimes I get bored.
 - It was embarrassing sometimes.
 - When people don't listen.
-

Purpose of the project?

- To get us warmed up.
 - To let us have fun.
 - To let us know that school is fun and is not punishment.
 - That school is not boring because she's teaching drama.
 - To help us understand more.
 - To make us feel happy.
 - To express ourselves better.
 - Teaching us about acting.
 - So we can learn about drama.
 - So we can have better math skills.
 - Because its fun and we can learn math at the same time.
-

Table C-4
Transcription of Student Focus Groups (continued)

What is taught?

- Figures we can do.
- Movement.
- We make up stories, starting with “once apart a time.”
- Learn our vocabulary words.
- We don’t do it that often, but mostly when we do we have spelling of vocabulary words.
- During reading workshop.
- Vocabulary.
- Dancing and singing at the same time.
- We learned poems with things.
- We used stories we read.

How has it helped you?

- It helps us understand what the word means.
- It helps other students. When we do fluency and every time we get tested we get a lot better at it.
- It helps people to be confident in front of the class.
- It helps people to express their feelings.
- Its just the same thing that we learned in math class.
- I learned it better more in dance.

Classroom behavior?

- The behavior is not any worse than anything else.
 - Its loud.
 - Some people act out, or they are too cool.
 - Kind of bad.
 - [Mentor] would get stressed and stuff.
 - The behavior is sometimes a problem.
 - Some of them seemed annoyed.
-

Table C-5
Principal Interview Comments

Project principals opinions about year 2 of the project

- Last year, I was initially concerned about the time that the teachers were going to have to commit to this project and how this would affect our structured reading program. I do feel that it is important to expose the students to the arts, and I feel that this is an opportunity to have this exposure. We do have music and Hawaiian, but this is another opportunity. I haven't had a chance to discuss this project at length with the teachers, but from what I gather you [program developers] have been supportive and flexible.
- As I mentioned last year I thought the program was a great idea. I saw an opportunity to be part of a research project that seemed to have some value to both the teachers and the students. I do hope that the results show that this program helps the students on their achievement tests.
- I think the program is good and has given the teachers some new skills. We are in restructuring so it is difficult for the teachers to attend the workshops needed for this and at the same for the project. I still maintain that it is a good program that allows the arts to be in the classroom without too much disruption for the other subjects.

<i>Group</i>	<i>Description of factors that may effect reading and mathematics achievement</i>
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|---------|---|
| Project | <ul style="list-style-type: none"> • We made our overall AYP goals last school year, and from that standpoint our reading program seems to have been effective. Overall, 35% of our students met or exceeded standards in reading. We are looking for a more remedial supplemental program for those students who are struggling. We are currently using off-grade level materials, which doesn't have the same concepts that you would find by using grade-appropriate materials. The students don't seem to be benefitting from these materials. • We have a Reading Excellence Program grant and next year we were awarded a Reading First grant, which allows us to extend our after-school program and higher reading tutors. In addition to Open Court (core reading program), we provide a research-based accelerated remedial reading program, Corrective Reading, for our students in grades 3-6 who are not at benchmark level and are in need of a second dose of daily reading instruction. We have a weakness in reaching math benchmarks for measurement, geometry, and constructed response so we focused more professional collaboration and waiver days on increasing our students' proficiency levels in those areas. In addition, an external math consultant was contracted this year to conduct professional development sessions for our faculty on the topics of measurement and geometry. • Our "Success for All" reading program continues to be implemented well. We have been really focusing on this program, and I'm confident that we'll make our AYP. We will be starting a new math program called "Everyday Math," which will be implemented in Fall of 2005. Fourteen of our teachers attended standards-based Math workshops at BYU Hawai'i. The workshops have focused on Geometry and Measurement, and the integration of the Math standards into the curriculum. |
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Table C-5
Principal Interview Comments (continued)

<i>Group</i>	<i>Description of factors that may effect reading and mathematics achievement (continued)</i>
Control	<ul style="list-style-type: none"> • We made AYP last year and Reading scores on HSA increased by 20% in 3rd and 5th grade. A lot of this has to do to our dedicated 90 minute language arts block. We have a Math Inclusion Program, which focuses on students who are close to meeting the proficient mark on the HSA. We purchased a new math curriculum that will be implemented in August 2005. • All students are assessed every eight weeks through our SFA Reading program. Students are placed in reading groups that match their ability level. Additional support is provided for students who are identified as not making or making very little progress. In addition, community volunteers and the A Plus Program provide morning and afternoon homework help. Students' writing scores did not meet the state average so we decided to do the Writing Matters Program • Our 3rd and 5th grade students exceeded the state benchmarks on the HSA for reading and math this past year so we achieved AYP for a second consecutive year. We will continue to use the Houghton Mifflin math program and our Harcourt Trophies reading program.