The Arts Integration Effect: How Arts Partnerships Improve Student Learning

January 29, 2013,
The Union League Club of Chicago

Partnership for Arts Integration Research (PAIR)

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Arts and Arts Integration Teaching and Learning:
Evolution of AEMDD CAPE Research Across Programs

Partnerships in Arts
Integrated Research
PAIR

Developing Early Literacy
through the Arts
DELTA
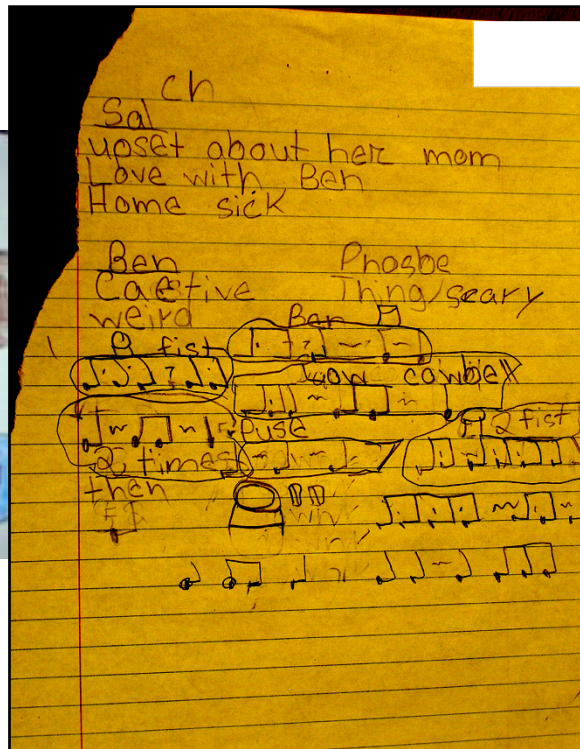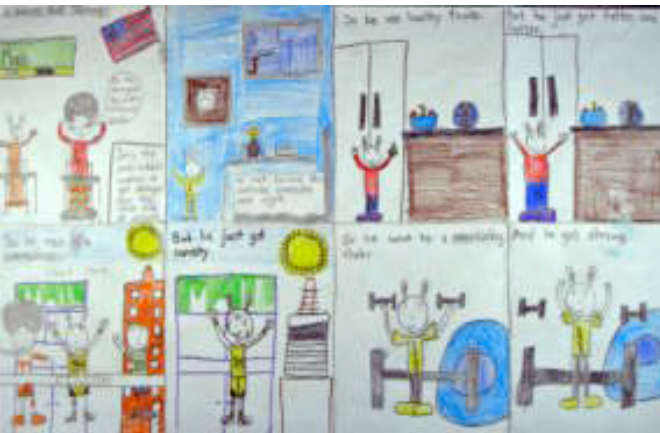
Portfolio Development Project
PDP
IB-TAP

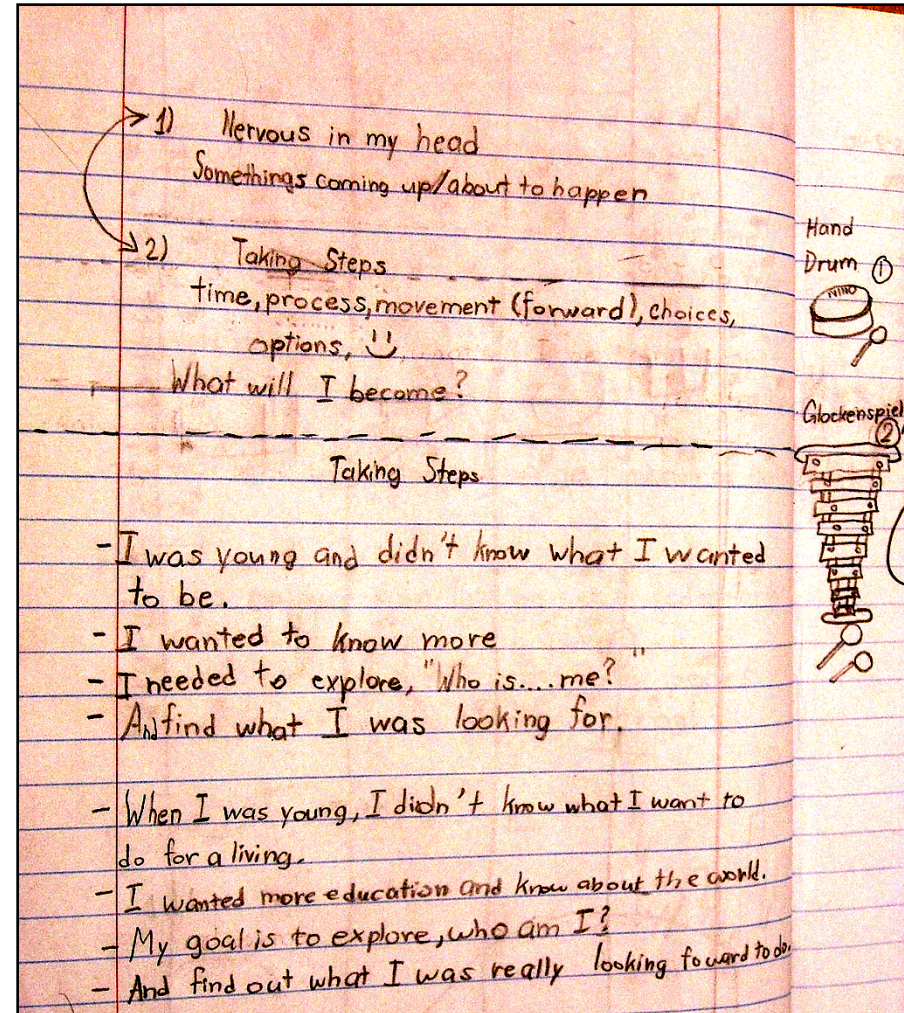What is the continuum from AEMDD project to project?

cape

Partnerships in
Arts Integration Research
PAIR

Executive Summary

PAIR brought together 3 pairings of Chicago public working with teaching artists in the 4th, 5th, and 6th grade.

The PAIR control-treatment research design focused on teacher impact and student achievement.

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PAIR Control-Treatment Academic Achievement Results

Control-Treatment School Comparisons of ISAT Combined Reading-Math Scores

These data indicate that PAIR treatment school scores were significantly different from control schools by the final year of the project.
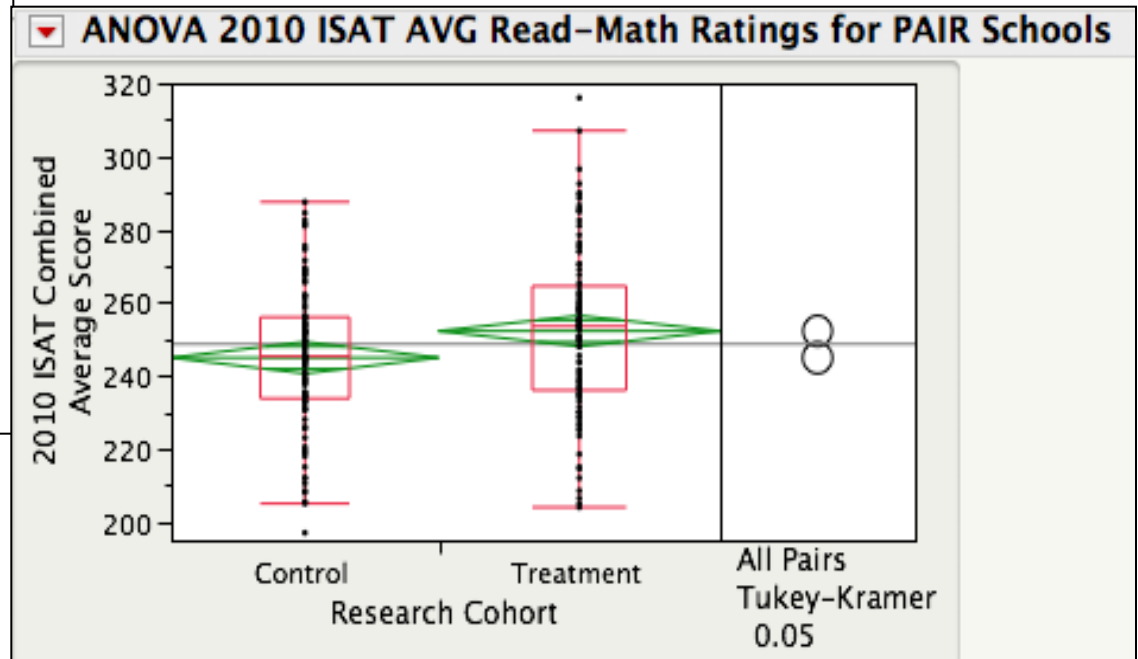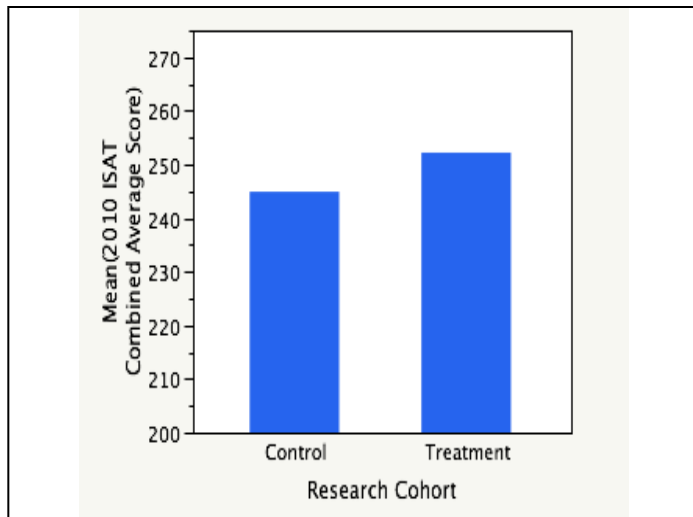
PAIR Follow-up Cohort Analysis of ISAT Combined Reading-Math Standardized Test Scores: District, PAIR Control, PAIR Treatment % Students Who Meet or Exceed CPS Benchmarks

FOLLOWUP PAIR treatment school analysis show that the PAIR effect takes root very strong after two years and indicate further that the effect size of the treatment may increase significantly in comparison to the initial longitudinal cohort of PAIR Treatment School students.
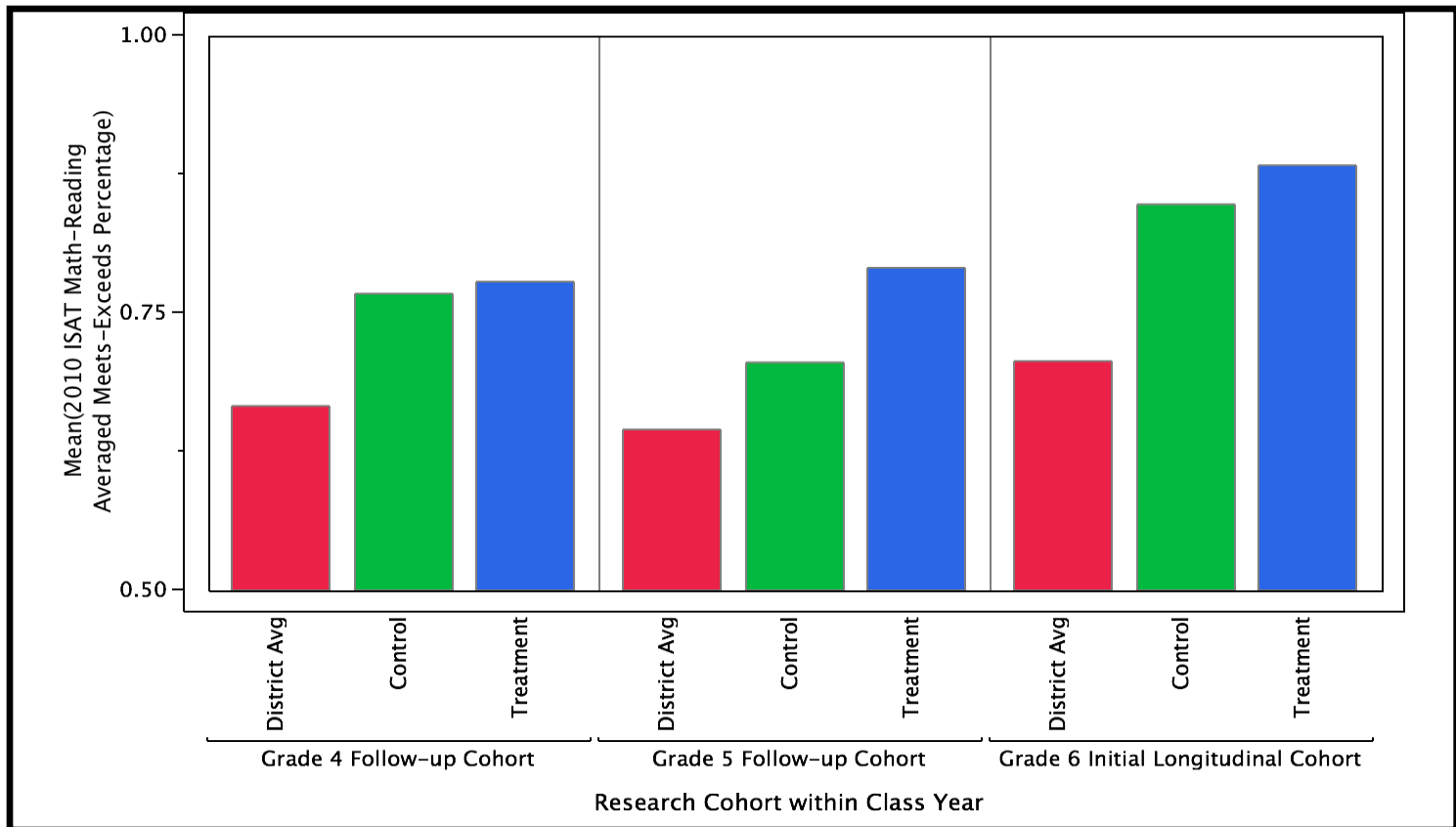
Control-Treatment School Comparisons of ISAT Reading-Math Scores by PAIR Focus School Types (Academic vs. Arts)

These data show that PAIR treatment arts (arts plus arts integration) school scores tended to exceed all other school types by the final year of the project.

2010 ISAT Combined AVG Score By Research Cohort by School Focus
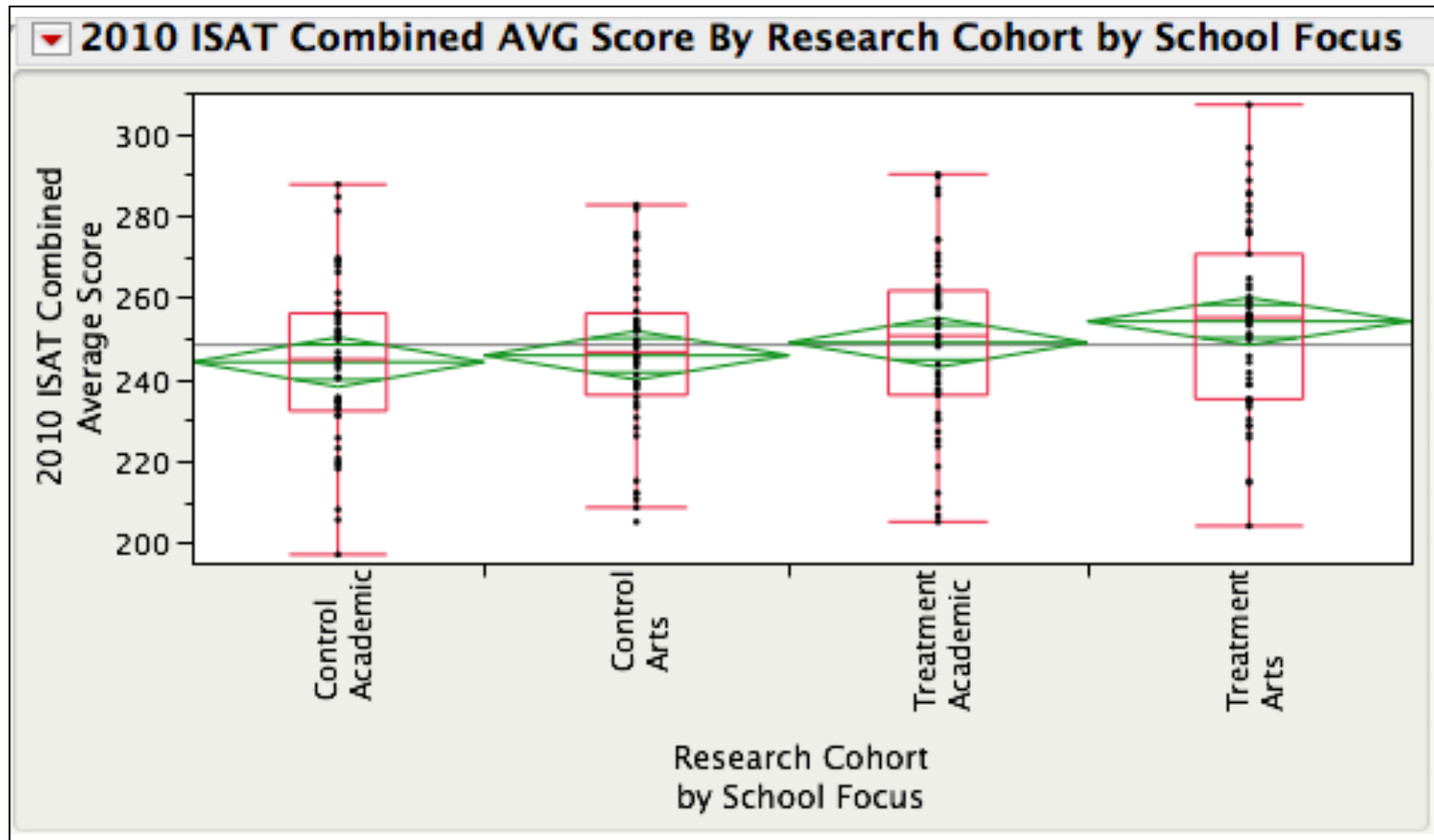
Analysis of ISAT Combined Reading-Math Standardized Test Scores: District, PAIR Control, PAIR Treatment % Students Who Meet or Exceed CPS Benchmarks

When using CPS district criteria for percentage of students meeting or exceeding academic benchmarks, the treatment arts (plus arts integration) schools far exceeded the conventional arts learning schools.
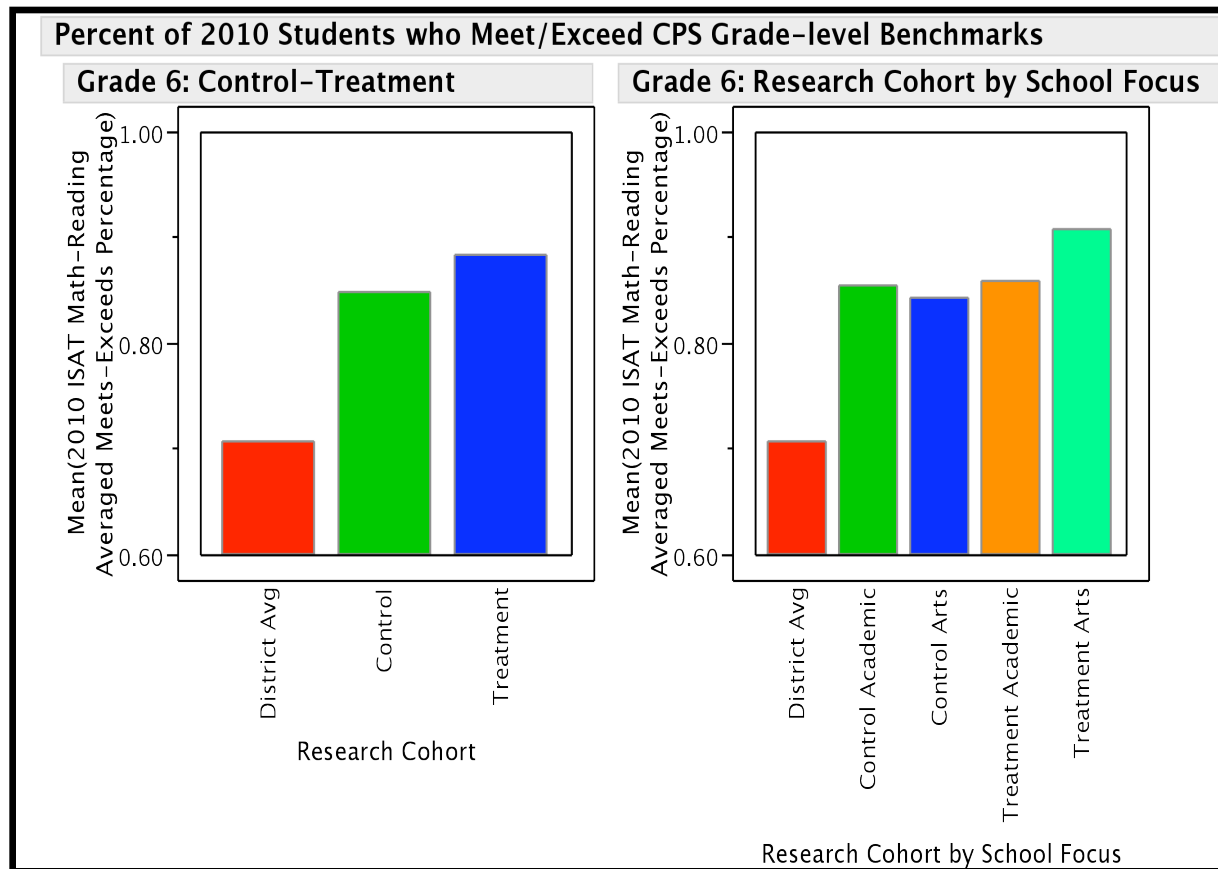
PAIR Control-Treatment Academic Achievement HAL Analysis

In addition, the achievement gap analysis establishes that the Arts Treatment Schools – those schools that focus both on arts and arts integration teaching and learning – not only outperform all other schools as previously reported, but also demonstrate the most compelling school profile for **reducing the learning gap for low achieving students.**
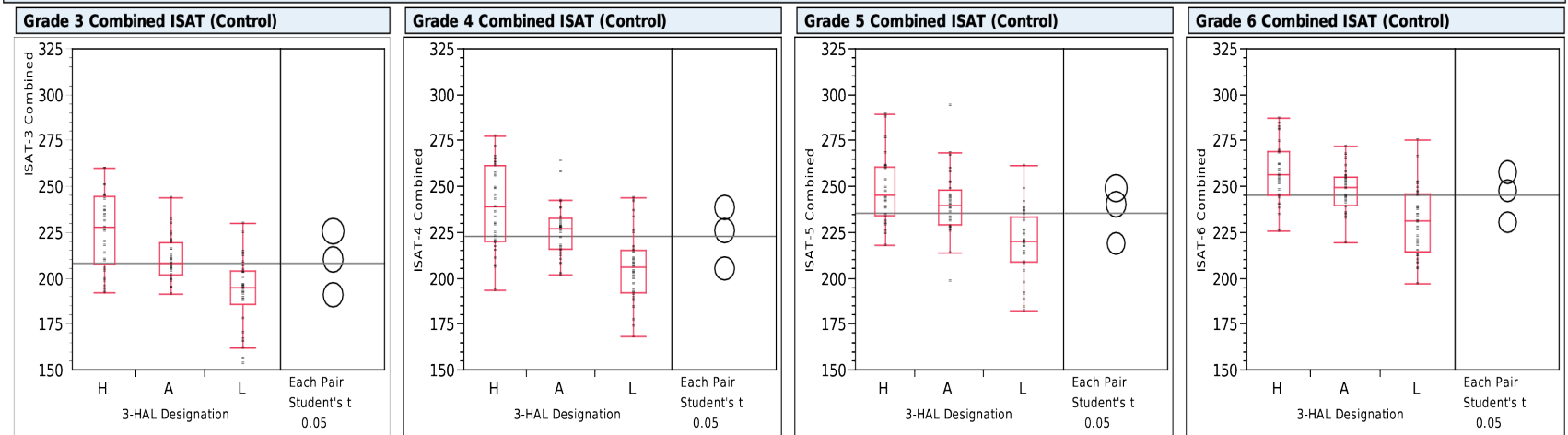
These findings suggest that PAIR arts integration methods and practices best demonstrate how raising test scores and closing the gap for the lowest level achievers is also a potent strategy for improving school culture and academic improvement simultaneously.

COMBINED ISAT Mean Score Achievement Gap Analysis (by HAL Designation) of Longitudinal CONTROL Group

Grade 3 Combined ISAT (Control) · Grade 4 Combined ISAT (Control) · Grade 5 Combined ISAT (Control) · Grade 6 Combined ISAT (Control)

COMBINED ISAT Mean Score Achievement Gap Analysis (by HAL Designation) of Longitudinal TREATMENT Group

Grade 3 Combined ISAT (Treatment) · Grade 4 Combined ISAT (Treatment) · Grade 5 Combined ISAT (Treatment) · Grade 6 Combined ISAT (Treatment)
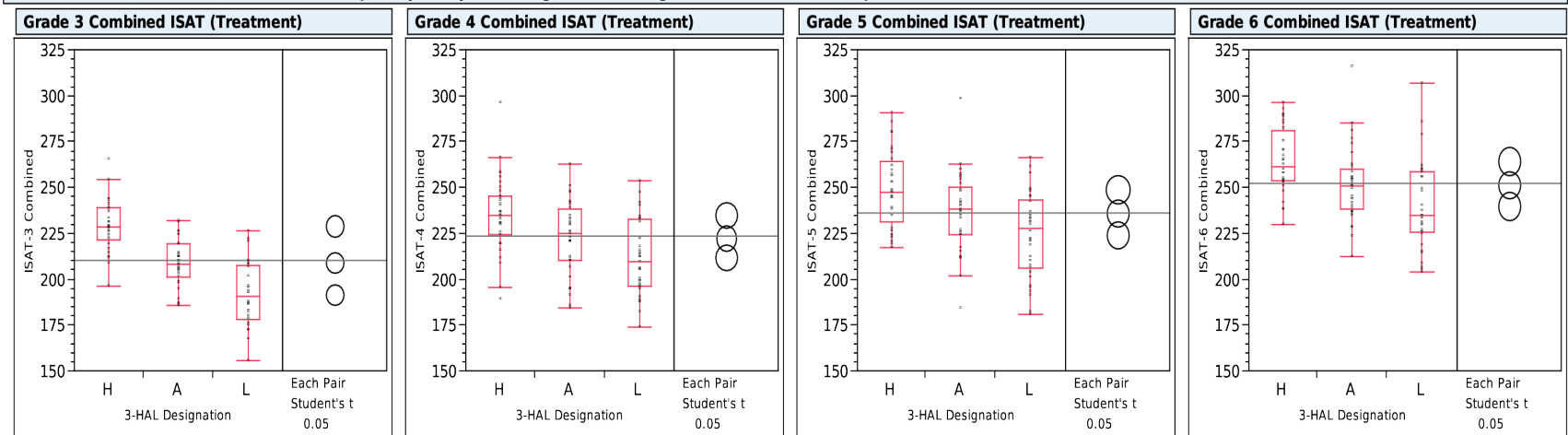
PAIR Analysis

Multivariate Analysis:
7 Teacher Outcome Factors Plus
4 Student Learning Outcomes

Teacher-Student Intersection Variables
Seven PAIR Teacher Profession Development Outcome Variables
A-I: Teacher Key Effect Ratings
A-II: Teacher Years of Participation in PAIR
A-III. Teacher PD Session Attendance
A-IV. Teacher Year-End Curriculum and Survey [YECS] Ratings
A-V. Classroom PAIL Work Sample Ratings
A-VI. Combined Teacher Professional Development Ratings
A-VII. Teacher Portfolio Conference Interview Response Ratings
Four PAIR Student Survey Response and Performance Outcome Variables
B-I. Student Survey Response Ratings
B-II. Student SAIL Interview and Performance Assessment Ratings
B-II: Student Portfolio Conference Interview Response Ratings
B-IV: Student Combined ISAT Academic Performance Ratings

RUBRICS CUBE Research Design Framework:
The Basis for PAIR Arts Integration Multivariate Program Research and Evaluation

Center for Music and Arts in Education (CMAIE)
RUBRICS CUBE System
Arts in Education Research Design & Assessment Framework

Strand 1: Arts Learning PARTNERSHIPS
I. *Research & Evaluation Organizations*
II. *Arts Learning Organizations*
III. *Arts/ Arts Integration Laboratory Schools*

Strand 2: Arts Arts Integration PROGRAM OUTCOMES
1. Pre-Professional/Guided Internship
2. Teacher Professional Development
3. Curriculum Design Quality
4. Teacher Performance
5. Student Work Documentation
6. Student Work / Performance Assessment / Test
7. Institution Capacity & Support
8. Research and Evaluation Publication / Dissemination

A. Program Inquiry & Investigation Plan
B. Program Implementation
C. Program Documentation & Assessment
D. Analysis, Evaluation, & Reflection

Strand 3: Collaborative Action Research Process

Student Arts Learning Tool #1: Snapshots of Arts Integration Learning (SAIL) Interview

Snapshot of Arts Integrated Learning (SAIL)

Topic 1: Describe and compare the philosophy of two art forms and one primary academic discipline focus at your school.

What is music? Can you give me an example?

What is theater? Example?

What is writing? Example?

How are music, theater, and writing similar to or different from one another?

Topic 2 Describe and compare the process of two art forms and one primary academic discipline focus at your school.

How do you make music? Can you give me an example?

How do you perform or act out something? Example?

How do you write a story? Example?

How are making music, acting, and writing a story similar to or different to each other?

Topic 3 Describe and compare the concept of a mistake of two art forms and one primary academic discipline focus at your school.

What is a mistake in music? What do you do when you make a mistake while playing music?

What is a mistake in drama performance? What do you do if you make a mistake while performing?

What is a mistake in writing? What do you do when you make a mistake?

How is it similar or different when you make a mistake in music, when performing, or when writing?

# Implementation and Results of the SAIL Protocol

- SAILs were given to CONTROL and TREATMENT students to measure their ability to think abstractly and articulate arts and arts integration concepts.

- Results: TREATMENT students generally score higher than CONTROL students on the SAIL interview.

Averaged Ratings of Snapshots of Arts Integrated Learning (SAIL) Student Interviews, Grade 6
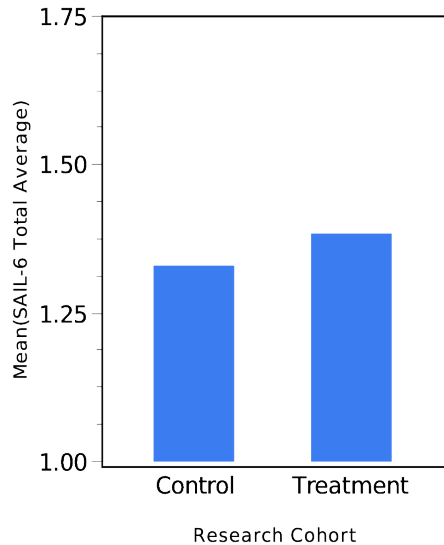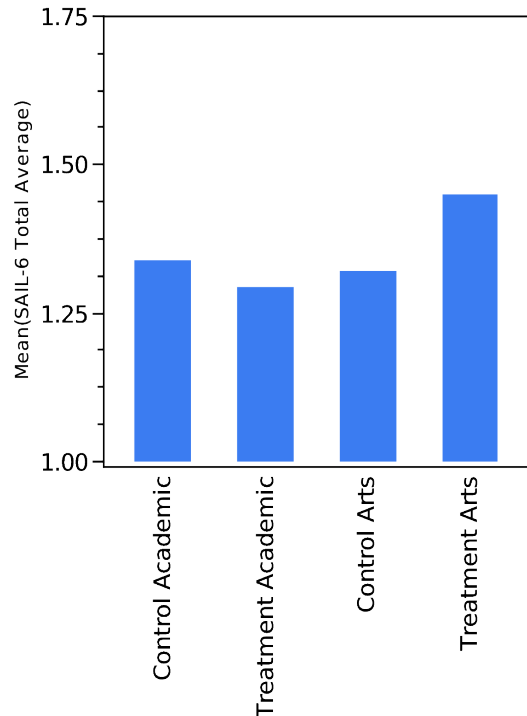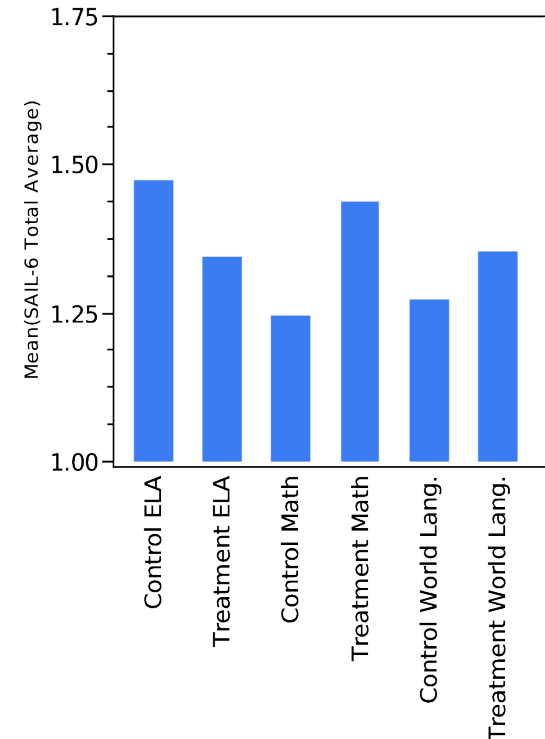
The SAIL interview and performance assessment tasks demonstrate valid and reliable measures of student understanding of creative and problem solving processes in multiple art forms and in their connection to other academic subject areas.

Results from SAIL assessments reviewed here suggest strongly that the *PAIR program primarily heightens understanding of arts and arts integration learning processes in Treatment Arts Focus Schools.*

That the *Treatment Arts Focus School SAIL scores outpace the Treatment Academic and all other Control groups suggests that PAIR program advances understanding of arts 'plus' arts integration learning in ways that primarily academic or conventional arts focused school programs do not*.

SAIL HAL Analysis

Results from this study indicate that the pre-designated classification of the HAL learners generally does not predict performance on the SAIL questions and tasks thus suggesting that the *SAIL ratings provide an alternative avenue for demonstrating understanding of arts and its connection to academic studies independent of prior academic achievement levels.*
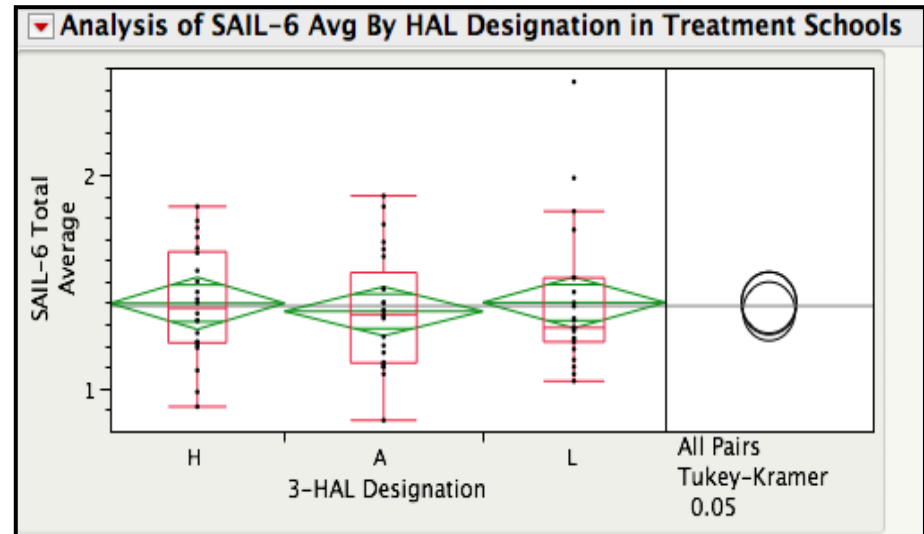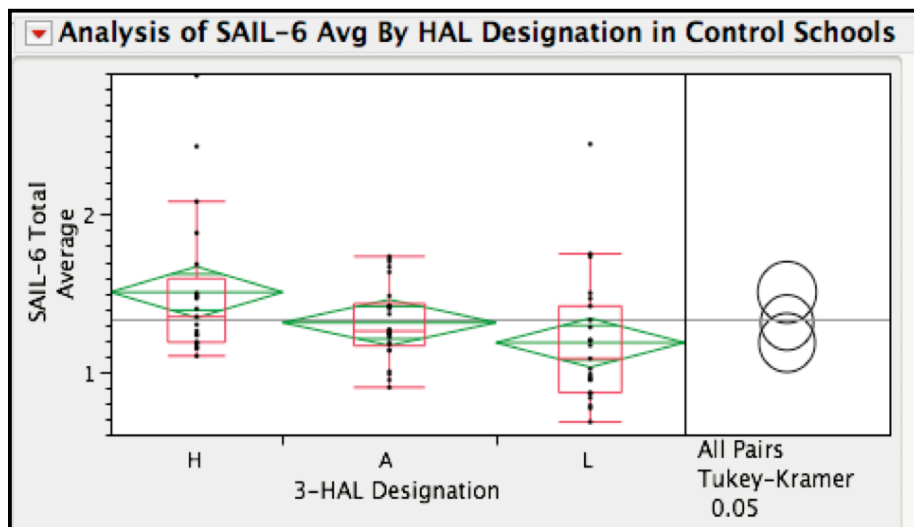
PAIL Collection of
Student Arts Integration Work

Analysis of Student Work

The importance of qualitatively evaluating student work documentation became crucial as the teachers and teaching artists were increasingly challenged to produce documentation that *captured the essence of arts and arts integrated learning in the context of their teaching practices.*

How Kingsley Got This Name
My mom pick that name becase kingsley is a smart name.So my mom pick Kingsley.My mom think it is the best name ever.My name mean the king meadow.
By:Kingsley Yeung
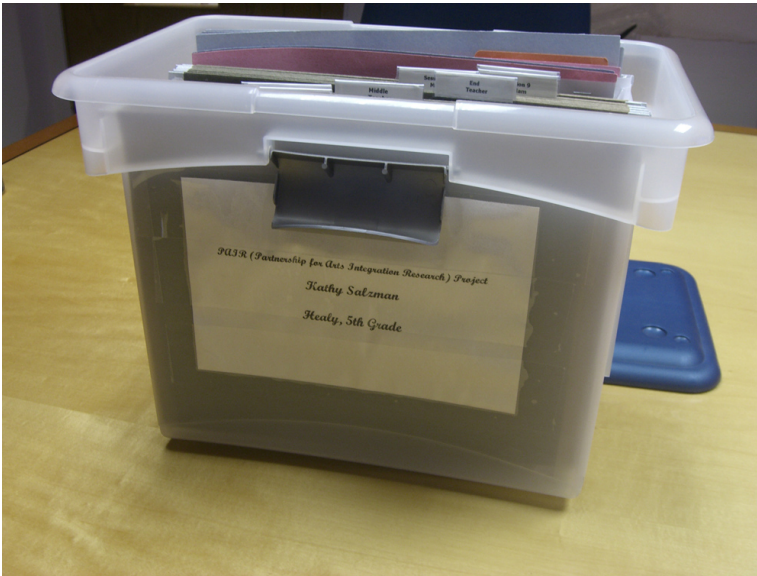
The PAIR Pail

Each classroom collected student work and teacher-teaching artist curriculum unit descriptions at the beginning, middle, and end of their PAIR unit.
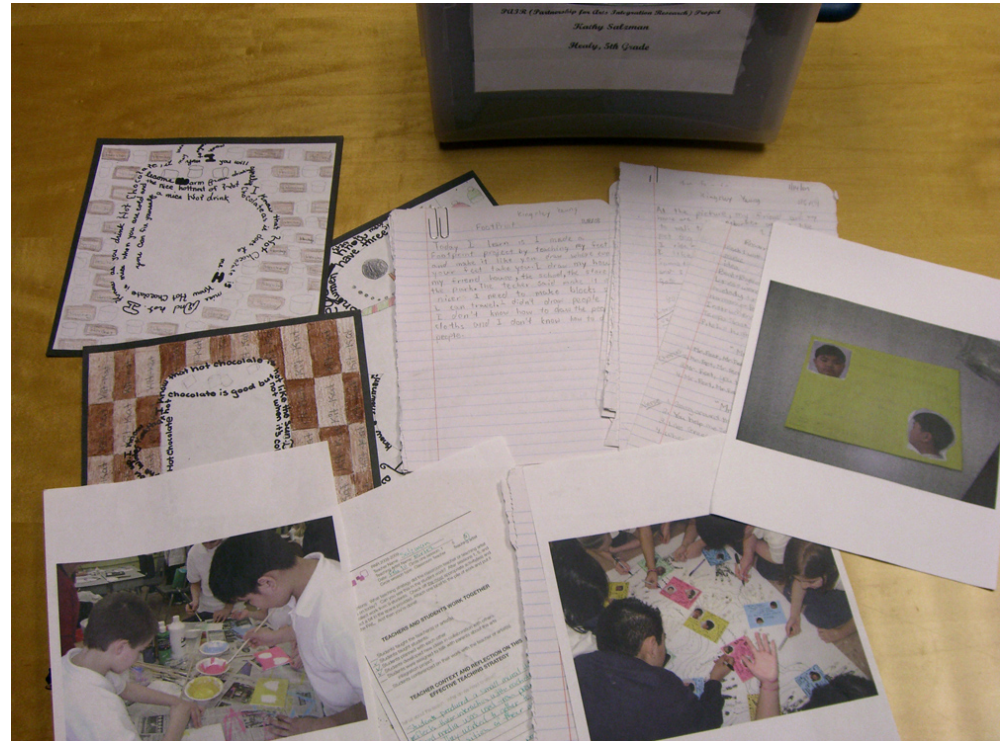
Ratings of PAIL samples using 3-point (1.0-1.5-2.0-2.5-3.0) scaled rubrics for evaluating:

Overall Quantity/Breadth/Completeness of PAIL Student Work Samples
Relevant to Arts and Arts integrated Teaching and Learning

Level 1 - Little or no work represented in PAIL Work Sample.
Level 2 – Incomplete/unbalanced sample of some or moderate work represented in PAIL Work Sample.
Level 3 – Balanced, extensive work represented in PAIL Work Sample.

Overall Qualitative Differences in PAIL Student Work Samples Relevant to Arts
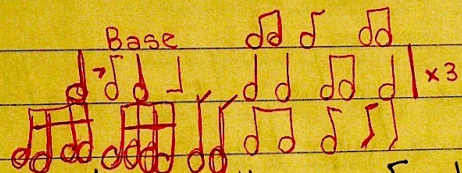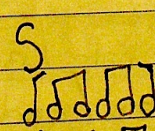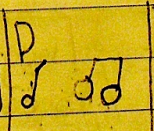Arts Integrated Teaching and Learning
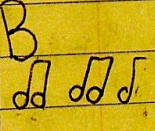
Level 1 - Novice or Beginning (generic, diffuse, single perspective, weakly relevant, undetailed)
Level 2 - Developing or Emergent (moderately specific, detailed, relevant, elaborative, coherent, relational)
Level 3 – Proficient or Advanced (highly specific, detailed, relevant, elaborative, coherent, relational, systemic)

This journal entry artifact contains multiple elements of music that were considered as ways to capture the essence of each character in relation to the other.

The student provides several renditions of the drum character patterns and an illustration of how a character (Phoebe) can go through different actions and mood changes. At the bottom of the page, the student provides a description of musical terms and how to interpret the music symbols in order to perform the patterns as intended by the student composer.

PAIR Student Arts Learning Tool #2: The PAIR Portfolio Conference Interview and Performance Assessment Protocol

The Teacher-Student Portfolio Conference Interview
PAIR

Description:

- PAIR <u>student</u> work portfolios ("PAILS") and contextual documents (relevant PAIR curriculum unit plans, class assignments, and evaluation rubrics are to be made available to classroom teachers and teaching artists prior to the start of the conference to look over the scope of work to be discussed that day

- Three (3) <u>students</u> are chosen to participate in the first portion of the conference; if possible, students represent the full range of academic abilities according to HAL (high, average, and low achieving students) prior academic designation in the classroom

- The <u>Teacher</u> is asked to select two primary works for the session: 1) something that shows good understanding of their work in terms of arts integrated learning, 2) "before and after" (pre-post) sample of work that shows evidence of improvement during the academic year. Video clips of small group, large group and culminating activities can be shown during this part of the conference as well

- Each <u>student</u> is challenged to select one favorite work sample that illustrates well the most interesting thing they did that year that want to talk about during the session

<u>Why Do It?</u>

This and the SAIL interview provide a method to measure arts integration cognition.

The two protocols work together in a coherent way to triangulate an accurate measure of student achievement.

Portfolio Conference Interview
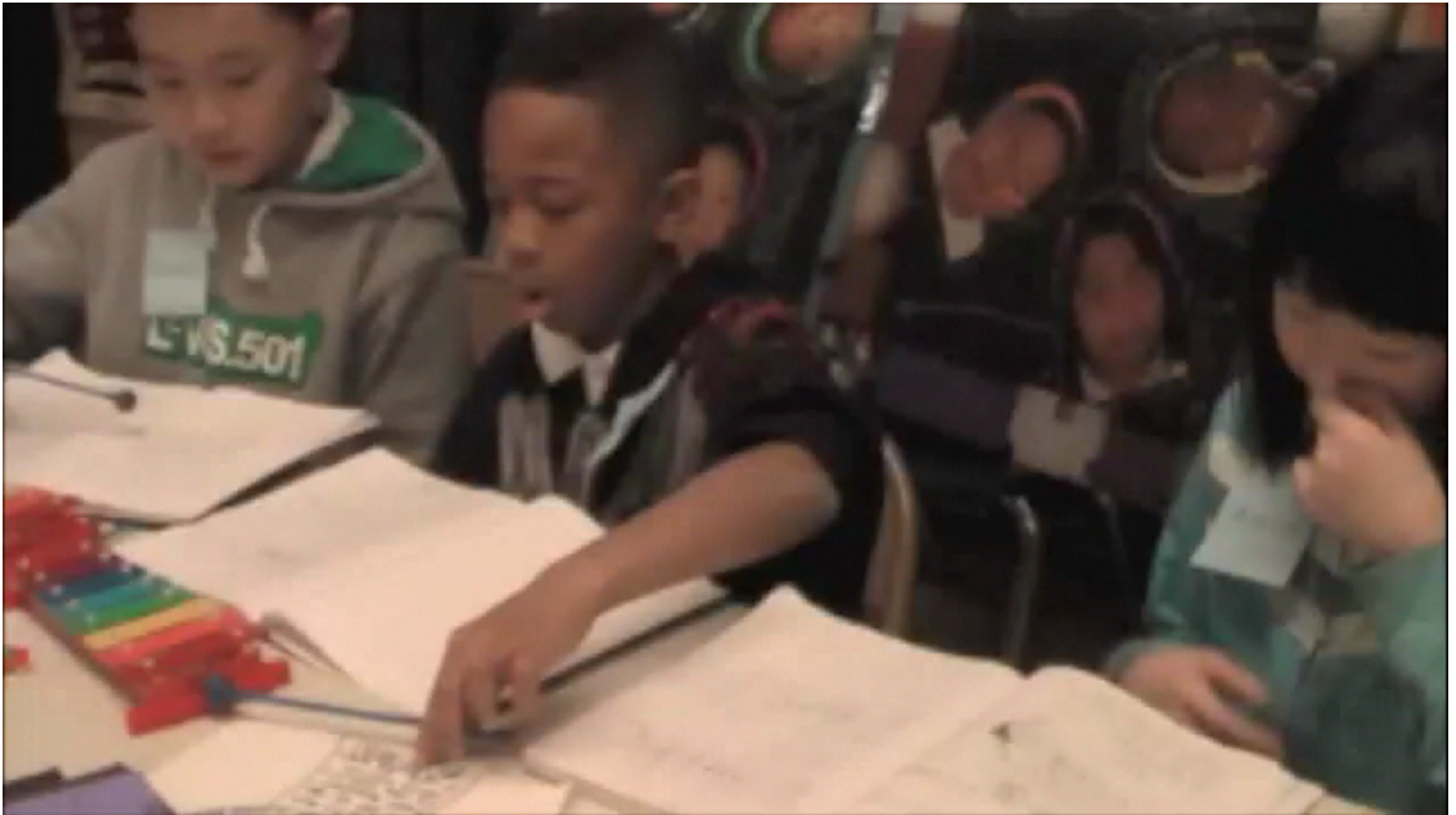
Analysis of Portfolio Conference Interview

The examples from the conference transcripts illustrate how the student portfolio conference interactions provide validated criteria for determining qualitatively different levels of individual student response to facilitator questions about their work process and products. We now have a catalog of exemplary responses that range from vague to specific, relational to systematic thinking that provide the basis for reliably rating evidence of student learning in the context of the portfolio conference protocol.

As a result of these analytic processes, qualitative ratings for teacher and student reflection now can provide the statistical basis of judgment of kind and degree of student learning.

Analysis of Portfolio Conference Interview

Scoring Rubric for Levels of Complexity of Response for both Teacher and Student Response Data

NA – not applicable *(if a question is not asked)*

NR - not relevant to the question

1.0-1.5 – Single Dimensional: Generic Response –*diffuse, highly, unelaborated general statements (like "I don't know" or "It was fun") that lacked detail*

2.0-2.5 – Multiple Single Dimensions: Several Concrete Concepts*; Some Detail, but lacking relational thinking, cohesion, and cause and effect statements*

3.0-3.5 – Coordination of Dimensions: Detailed Concepts and Explanation *and a focus on relationships and causal links among the elements of the response*

4.0-4.5 – Systemic Reflective Understanding: Evidence of Comprehensive Understanding *that includes a demonstrated systematic knowledge and understanding of concepts, processes and other examples described and their persuasive description of the links and associations among all factors described.*

- **Student A:** I got...we had...with Miss Jessica (CAPE dance teaching artist), she ...had us do two things. She made us do where we had to have a fraction of ourselves.... First I did, like, what I am, like my race ... and I'm going to say it to you like how I wrote it. "I am a fraction. I am 33% Mexican, 33% Puerto Rican, 33% Honduran, and 1% American. I am whole." She made us do this. She said we can do one part too, and I did two. What to hear the other one?
- **Facilitator:** Yes, please.
- **Student A:** "I am a fraction. I am 50% kind and 15% mean, and 35% happy. I am whole."
- **Facilitator:** [*Laughs.*]. I like the proportion there. Now, why was Jessica, who does dance, care about fractions in relationship to who you are? That's not even about dance. Why did she do that?
- **Student A:** Because for fractions, 'cause, like, how Student K was saying we had to have different fraction counts for how much we move. And then she also kind of wanted us to do a little personality in our dance routines.

**Rater Remarks*: 3.5 Connects fractions/percentages with choreographic structure and self-identity, substantially detailed explanation*
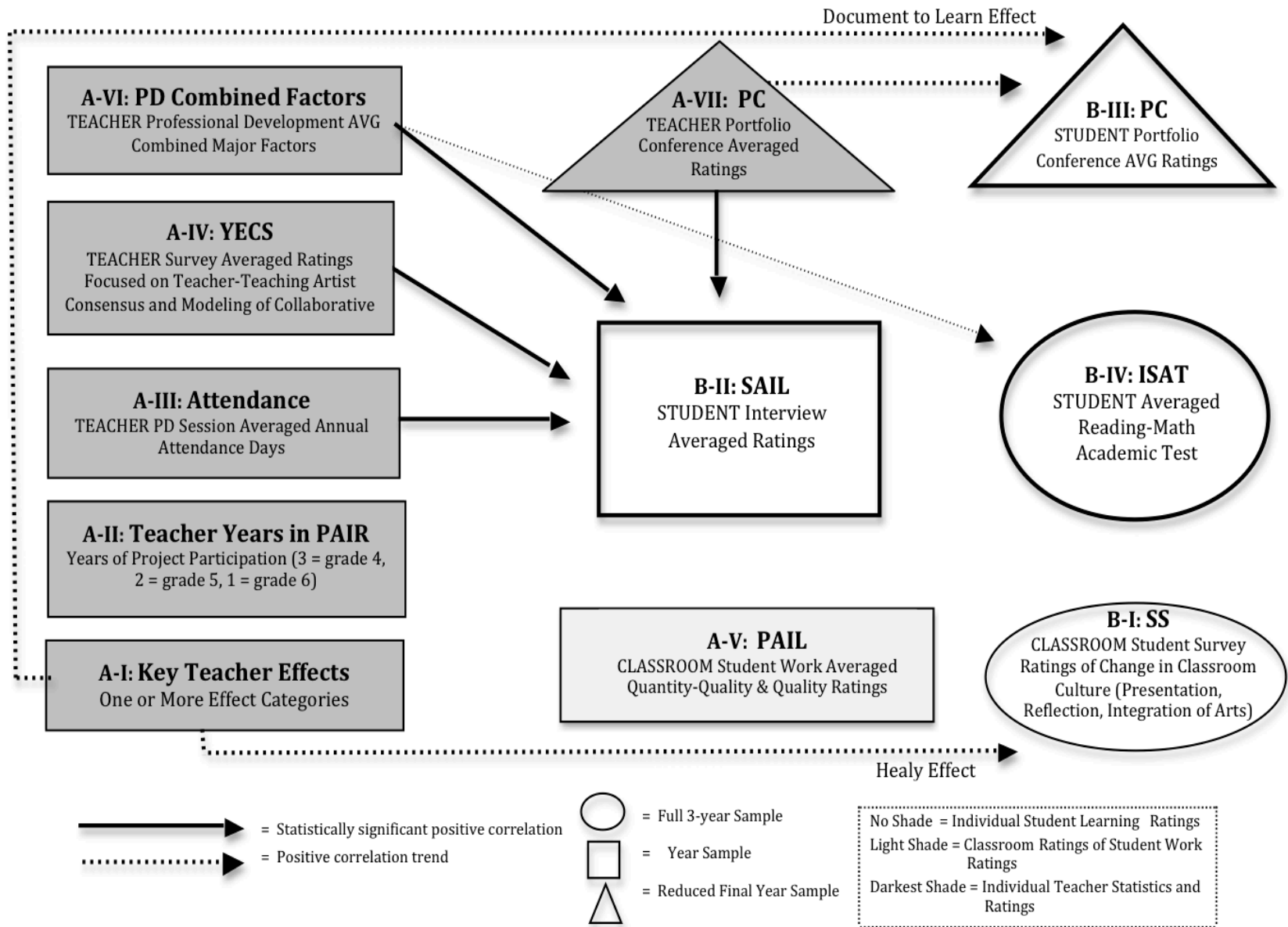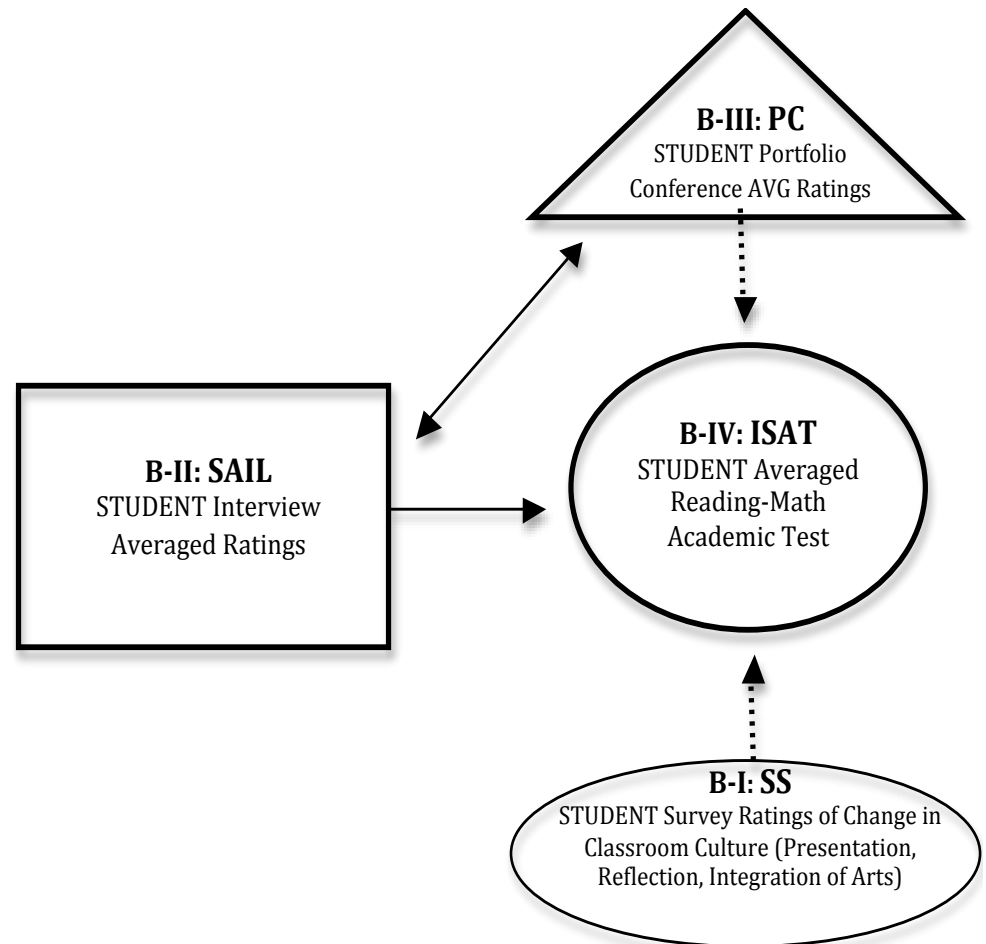
5 Summary Multivariate Data Analysis Charts

SUMMARY FIGURE 1: A Flow-Chart Map of Inter-Related PAIR Teacher Professional Development Rating Factors.
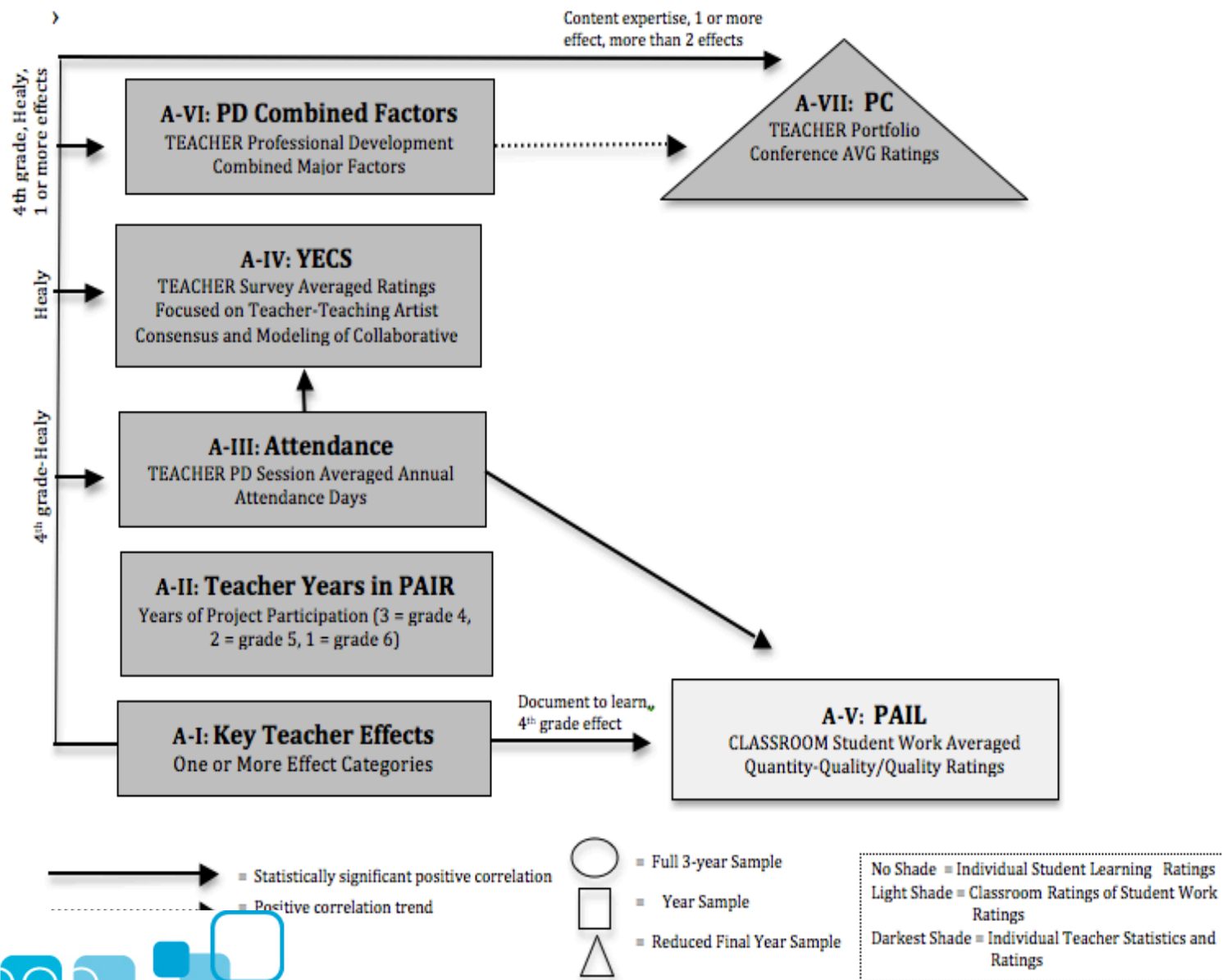
SUMMARY FIGURE 2: A Flow-Chart Map of All PAIR Teacher Professional Development – Student Learning Outcome Intersections.

Document to Learn Effect

A-VI: PD Combined Factors
TEACHER Professional Development AVG Combined Major Factors

A-VII: PC
TEACHER Portfolio Conference Averaged Ratings

B-III: PC
STUDENT Portfolio Conference AVG Ratings

A-IV: YECS
TEACHER Survey Averaged Ratings Focused on Teacher-Teaching Artist Consensus and Modeling of Collaborative

A-III: Attendance
TEACHER PD Session Averaged Annual Attendance Days

B-II: SAIL
STUDENT Interview Averaged Ratings

B-IV: ISAT
STUDENT Averaged Reading-Math Academic Test

A-II: Teacher Years in PAIR
Years of Project Participation (3 = grade 4, 2 = grade 5, 1 = grade 6)

A-V: PAIL
CLASSROOM Student Work Averaged Quantity-Quality & Quality Ratings

B-I: SS
CLASSROOM Student Survey Ratings of Change in Classroom Culture (Presentation, Reflection, Integration of Arts)

A-I: Key Teacher Effects
One or More Effect Categories

Healy Effect

→ = Statistically significant positive correlation

┄┄► = Positive correlation trend

○ = Full 3-year Sample

□ = Year Sample

△ = Reduced Final Year Sample

No Shade = Individual Student Learning Ratings
Light Shade = Classroom Ratings of Student Work Ratings
Darkest Shade = Individual Teacher Statistics and Ratings

SUMMARY Figure 3: A Flow-Chart Map of PAIR Inter-Related Student Outcome Factors. .

B-III: PC
STUDENT Portfolio
Conference AVG Ratings

B-II: SAIL
STUDENT Interview
Averaged Ratings

B-IV: ISAT
STUDENT Averaged
Reading-Math
Academic Test

B-I: SS
STUDENT Survey Ratings of Change in
Classroom Culture (Presentation,
Reflection, Integration of Arts)

= Statistically significant positive correlation

= Positive correlation trend

= Full 3-year Sample

= Year Sample

= Reduced Final Year Sample

No Shade = Individual Student Learning   Ratings
Light Shade = Classroom Ratings of Student Work
Ratings
Darkest Shade = Individual Teacher Statistics and
Ratings

SUMMARY FIGURE 4: A Flow-Chart Map of PAIR Teacher Professional Development and Student Regression Factors Most Associated with Targeted Student Learning Outcomes.
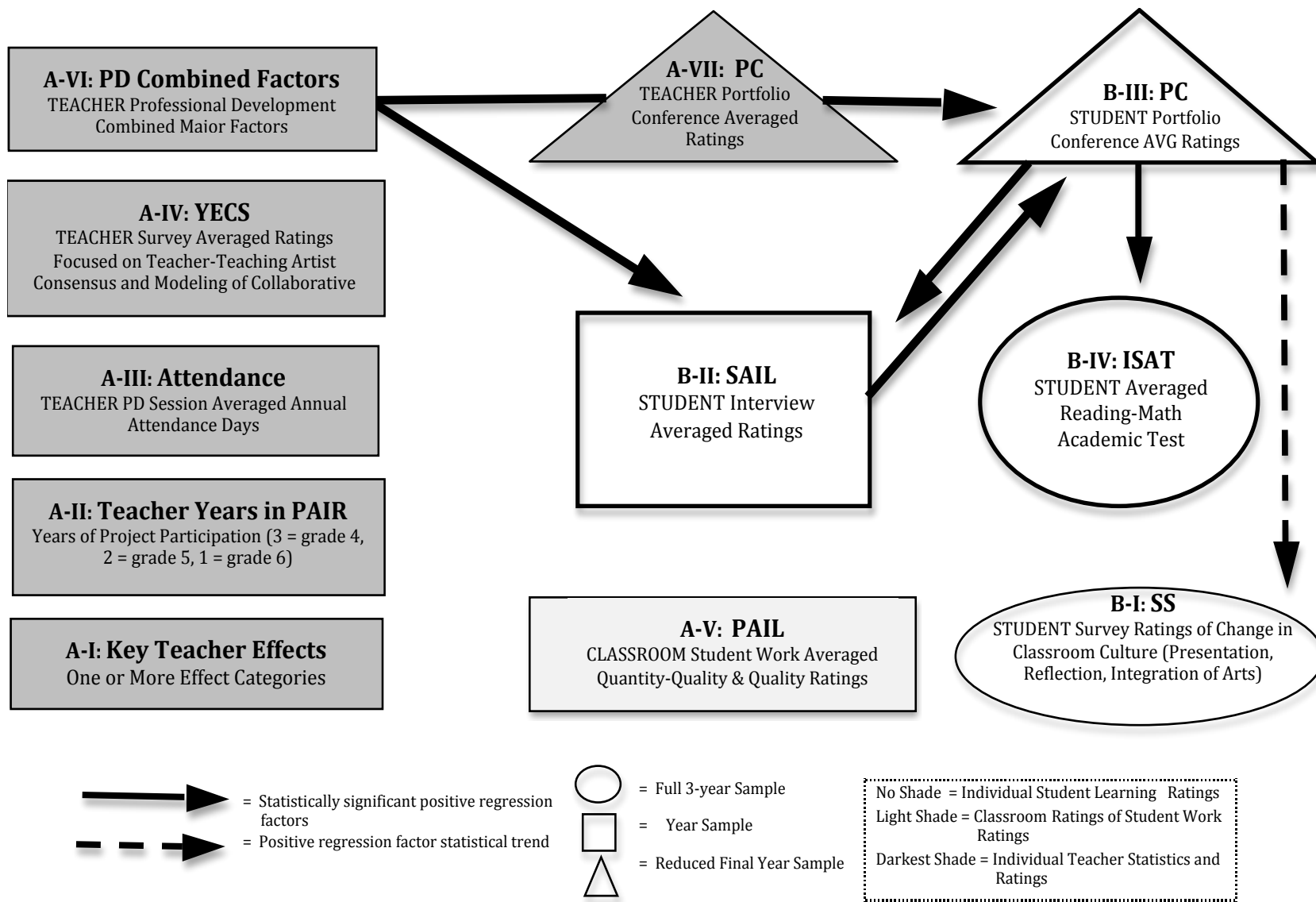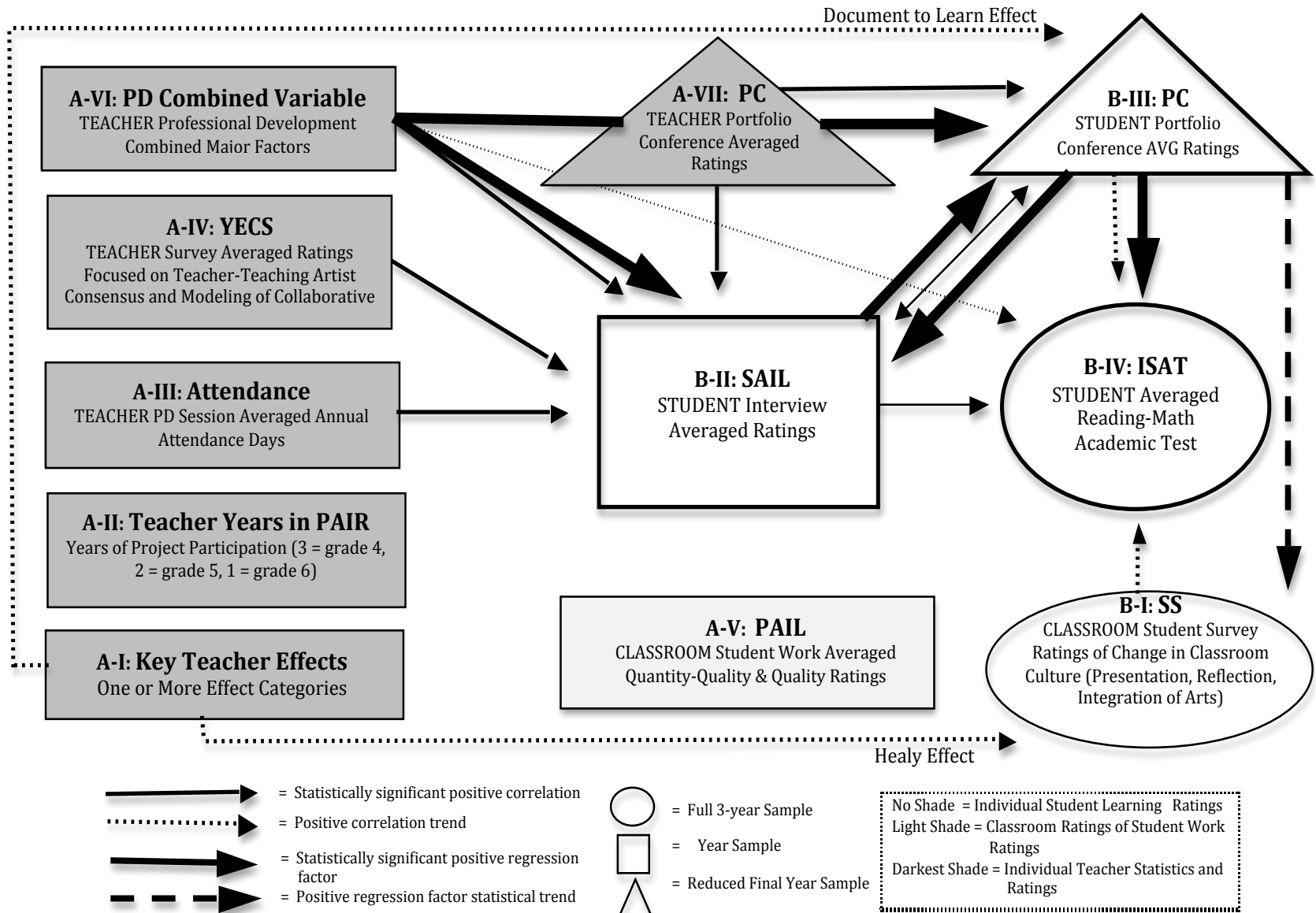
SUMMARY FIGURE 5: A Correlation-Regression Map of PAIR Combined Teacher-Student Outcome Intersection Factors.

PAIR Conclusions

PAIR Summary 1: Results from State Standardized Academic Test Data

- In the CPS system, open enrollment arts magnet schools generally outperform district schools; PAIR arts plus arts integration schools outperformed all other arts magnet schools regardless of academic or arts emphasis.

- PAIR schools closed the achievement gap for previously designated low academic performing students.

- Follow-up cohort data indicate sustainability if not improvement of these results over time.

- Conclusion: There is statistical evidence that arts integration teaching and learning practices provide equity and optimize student academic performance simultaneously.

PAIR Summary 2: Results from Arts Integration Student and Teacher Alternative Assessments

- PAIR Snapshots of Arts Integration Learning [SAIL] and Portfolio Conference [PC] Interviews provided two validated forms of alternative student arts integration performance assessments.
- PAIR treatment schools outperform control schools in SAIL alternative assessments.
- Individual student SAIL and PC outcomes are highly correlated, yet they are not significantly influenced by previous academic achievement, gender, family income, or ethnicity.
- Individual teacher PC interview, attendance, survey and student work documentation ratings provide basis for professional development outcome evaluation.
- Conclusion: Arts integration alternative assessments provide the basis for determining substantive causal links that progress from program factors to teacher and student learning outcomes.

PAIR Summary 3: Results that indicate causal links among various Teacher PD and Student Intersections in Treatment Schools

- The pattern and degree of correlation among various teacher professional development and performance factors suggest a high degree of program coherency based on qualitative differences in teacher performance.

- The pattern and degree of correlation and regression factor analysis demonstrate that the overall profile of individual teacher Professional development outcome factors strongly predicts student arts integration performance ratings.

- The pattern and degree of correlation and regression factor analysis demonstrate that Individual student arts integration assessment outcomes most directly predict academic test results controlling for achievement, gender, family income, prior academic achievement ratings, or ethnicity.

- Long term, high quality Teacher participation in PAIR and PAIR arts academic focused schools predicts the highest degree of association between teacher PD and student learning outcomes.

PAIR Overall Summary:

- Conclusion: It is now possible to qualitatively and quantitatively assess the impact of individual teacher arts integration on student performance in both arts integration and academic learning, with high expectations for academic excellence regardless of student demographic factors.

- CAPE next steps: Investigate further the efficacy and impact of high quality arts plus arts integration portfolio documentation and assessment developed by collaborating classroom teachers, arts specialists, and teaching artists in middle schools.