

MEMORANDUM

TO: Kenneth Jones
 FROM: Ajay Khashu
 DATE: October 10, 2017
 SUBJECT: Scranton/Riverside School Analysis

As per your request, this memo expands on our analysis of participant outcomes from the Salvadori Center's initiative in the Scranton and Riverside public schools. This memo breaks out our analyses for each of the four participating schools: Northeast Scranton Intermediate, South Scranton Intermediate, West Scranton Intermediate, and Riverside JSHS.

- Bridges participants at all four Scranton schools demonstrated a statistically significant increase in their understanding of various types of bridges, and the advantages and features of different bridge designs.

Table 1. Pre- vs. Post-test Assessments of Students' Familiarity with Bridge Types and Functions

Student Knowledge of Bridges			
Mean (range 0-100)			
	Pre-test Score	Post-test Score	Change
Northeast Scranton Intermediate	25.9	41.0	+ 15.1 [#]
South Scranton Intermediate	29.4	44.3	+ 14.8 [#]
West Scranton Intermediate	26.6	45.8	+ 19.1 [#]
Riverside JSHS	26.2	43.1	+ 16.8 [#]
<i>All Schools</i>	26.9	43.5	+ 16.6 [#]

[#] Statistically significant change from baseline to follow-up (p<.0001)

- Bridges participants at all four Scranton schools demonstrated a statistically significant increase in their understanding of the effects of common forces on moving objects.

Table 2. Pre- vs. Post-test Assessments of Students' Understanding of the Effects of Common Forces

Student Understanding of the Effects of Common Forces			
Mean (range 0-100)			
	Pre-test Score	Post-test Score	Change
Northeast Scranton Intermediate	53.5	68.0	+ 14.5 [#]
South Scranton Intermediate	64.2	73.6	+ 9.4 [*]
West Scranton Intermediate	59.9	75.5	+ 15.6 [#]
Riverside JSHS	64.2	75.6	+ 11.5 [#]
<i>All Schools</i>	59.5	72.8	+ 13.3 [#]

[#] Statistically significant change from baseline to follow-up (p<.0001)

^{*} Statistically significant change from baseline to follow-up (p<.01)

- Bridges participants at Riverside JSHS and Northeast Scranton Intermediate demonstrated a statistically significant improvement in their ability to interpret chronological timeline data.

Table 3. Pre- vs. Post-test Assessments of Students' Ability to Read and Interpret a Chronological Timeline

Students' Ability to Correctly Interpret a Timeline			
Mean (range 0-100)			
	Pre-test Score	Post-test Score	Change
Northeast Scranton Intermediate	60.2	66.6	+ 6.4 [%]
South Scranton Intermediate	66.5	65.7	+ 0.8
West Scranton Intermediate	62.6	64.8	+ 2.2
Riverside JSHS	64.4	74.3	+ 9.9 [*]
<i>All Schools</i>	62.9	67.1	+ 4.2 [*]

^{*} Statistically significant change from baseline to follow-up (p<.01)

[%] Statistically significant change from baseline to follow-up (p<.05)

- Bridges participants at Riverside JSHS and Northeast Scranton Intermediate demonstrated a statistically significant increase in their understanding of the scientific inquiry process, including the definition of a hypothesis and the scientific method

Table 4. Pre- vs. Post-test Assessments of Students' Understanding of the Scientific Inquiry Process

Student Understanding of the Scientific Inquiry Process			
Mean (range 0-100)			
	Pre-test Score	Post-test Score	Change
Northeast Scranton Intermediate	62.8	74.3	+ 11.5 [#]
South Scranton Intermediate	76.3	76.3	+ 0.0
West Scranton Intermediate	71.0	80.1	+ 9.0
Riverside JSHS	73.3	79.2	+ 5.9 [*]
<i>All Schools</i>	69.9	77.3	+ 7.5 [#]

[#] Statistically significant change from baseline to follow-up (p<.0001)

^{*} Statistically significant change from baseline to follow-up (p<.01)

- Bridges participants at all four participating Scranton schools demonstrated a significant increase in their confidence that they can be successful in math and science.

Table 5. Pre- vs. Post-test Assessments of Students' Confidence in their Ability to Succeed in Math and Science

Math and Science Confidence			
Mean: range 0 (low) - 100 (high)			
	Pre-test Score	Post-test Score	Change
Northeast Scranton Intermediate	76.4	78.6	+ 2.1 [#]
South Scranton Intermediate	75.4	78.6	+ 3.1 [*]
West Scranton Intermediate	80.6	82.7	+ 2.1 [*]
Riverside JSHS	79.5	81.8	+ 2.3 [*]
<i>All Schools</i>	78.1	80.4	+ 2.3 [#]

[#] Statistically significant change from baseline to follow-up (p<.0001)

^{*} Statistically significant change from baseline to follow-up (p<.01)

- Bridges participants Riverside JSHS and Northeast Scranton Intermediate demonstrated a significant increase in their motivation to pursue educational and career choices in STEM.

Table 6. Pre- vs. Post-test Assessments of Students' Future-Oriented Science Motivation

STEM Motivation			
Mean: range 0 (low) - 100 (high)			
	Pre-test Score	Post-test Score	Change
Northeast Scranton Intermediate	55.5	58.9	+ 3.4*
South Scranton Intermediate	60.8	63.4	+ 2.6
West Scranton Intermediate	60.1	60.5	+ 0.3
Riverside JSHS	55.4	62.2	+ 6.8 [#]
<i>All Schools</i>	<i>57.9</i>	<i>60.8</i>	<i>+ 2.9[#]</i>

[#] Statistically significant change from baseline to follow-up (p<.0001)

* Statistically significant change from baseline to follow-up (p<.01)

If you have any questions about this memo or the evaluation process, please feel free to contact:

Ajay Khashu
 Youth Studies, Inc.
 155 Water St.
 Brooklyn, NY 11201
 mobile: (917) 582-4256
 e-mail: ajay@youthstudiesinc.com