

Impact of the Arts on Education

Question 1: How does art program staffing affect state test results in NYC public schools?

MOTIVATION: To better understand how art program staffing affects state test results to provide arts staffing suggestions

DATA:

- School Arts Survey (mandatory, self report) for school years: 2016-2017, 2017-2018, 2018-2019
- Pass Rates per School in ELA and Math for school years: 2016-2017, 2017-2018, 2018-2019
- n = 1116 schools

Survey Question: Select the best description for the person who is responsible for the implementation and evaluation of art education programs.

Survey Responses: **1.** Full time supervisor dedicated solely to the arts **2.** Full time supervisor with duties other than the arts **3.** Part-time supervisor who also teaches **4.** No arts supervisor

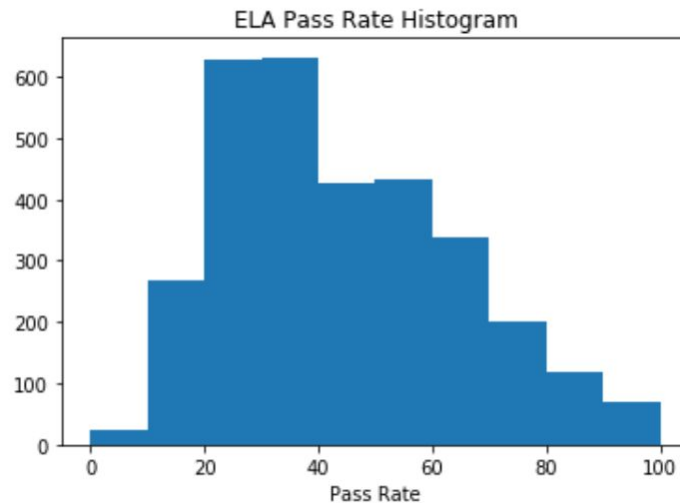
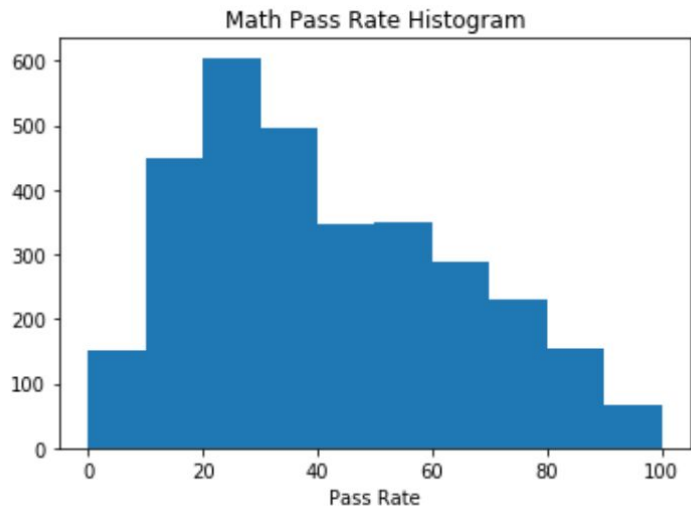
HYPOTHESES:

Hypothesis: IF art programs have an affect on state test results THEN there will be a statistically significant difference in ELA and Math state test scores between schools with a full time arts supervisor and schools without a full time arts supervisor.

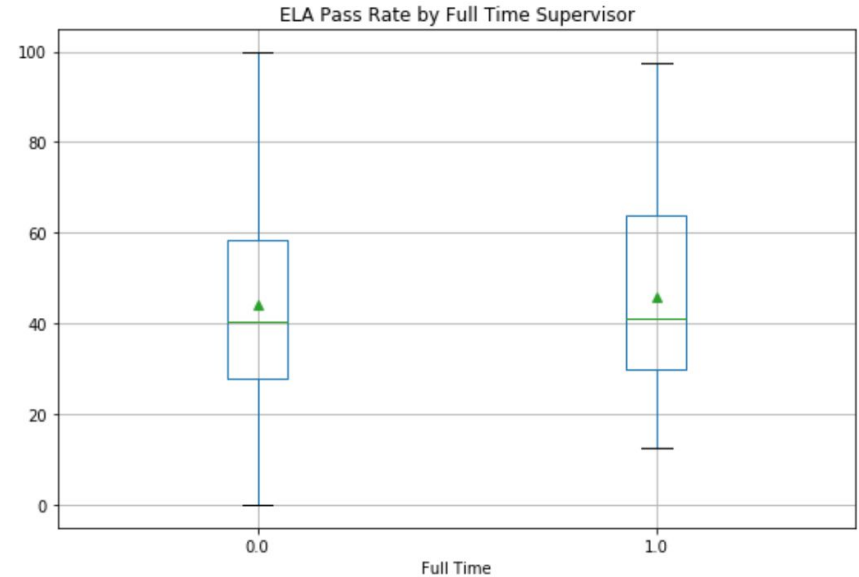
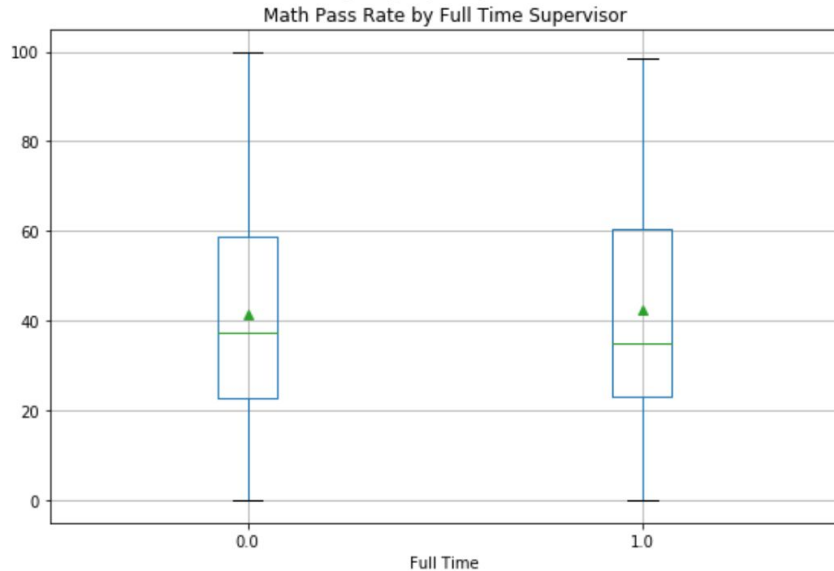
Null Hypothesis: IF art programs do not have an affect on state test results THEN there will be no statistically significant difference in ELA and Math state test scores between schools with a full time arts supervisor and schools without a full time arts supervisor.

Question 1: How does art program staffing affect state test results in NYC public schools?

Subject	Full Time Only	Full Time Plus Other Duties	Part Time	None	Total
ELA	85	2115	218	716	3134
Math	85	2115	218	715	3133



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Welch's t-tests were performed for Math ($p = .75$) and ELA ($p = .42$). Results show that there is not a statistically significant difference in test scores for schools with a full time supervisor vs. those without.

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CONCLUSION:

- Schools with a full time arts supervisor perform about the same as schools without a full time supervisor on ELA and Math state tests.
- Because arts program staffing does not have an affect on state test scores, this study will further explore how funding and types of programs offered affect state test scores.
- For schools considering how to allocate resources, it may be better to spend money on more part-time staff to provide varying arts programs over one full time arts supervisor.

LIMITATIONS:

- Unable to use Arts Survey data from prior years.
- All Arts Survey data is self-reported and the person completing the report may not be aware of arts provided by outside organizations vs. what is offered in-house.
- School-level data was used and it is unclear how many/which students participated on both arts programs and state tests.

FUTURE DIRECTIONS:

- Combine this survey with STAR data on in-house arts programs
- Consider other questions of the arts survey related to program staffing such as certification status and years of experience.
- Examine the effect of arts program staffing on state test scores for schools that did not have full time arts supervisor and then hired an arts full-time supervisor the following year.

Question 2: How does art program **funding** affect state test results in NYC public schools?

MOTIVATION: To better understand how art program **funding** affects state test results to provide recommendations to schools about funding decisions

DATA:

- School Arts Survey (mandatory, self report) for school years: 2016-2017, 2017-2018, 2018-2019
- State Test Scores in ELA and Math for school years: 2016-2017, 2017-2018, 2018-2019
- N = 1116 schools

HYPOTHESES:

Hypothesis: IF funding for the arts affects student performance, THEN schools with stronger indicators of funding will have significantly different math and ELA state test scores than schools with weaker indicators of funding.

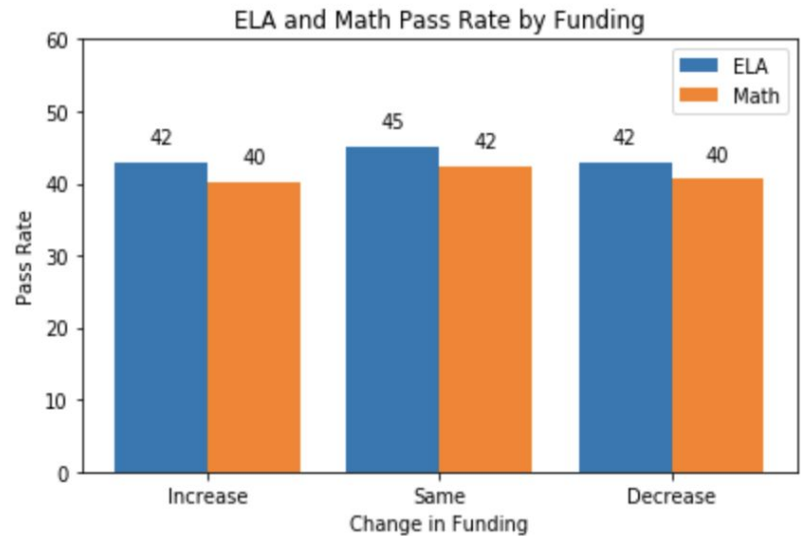
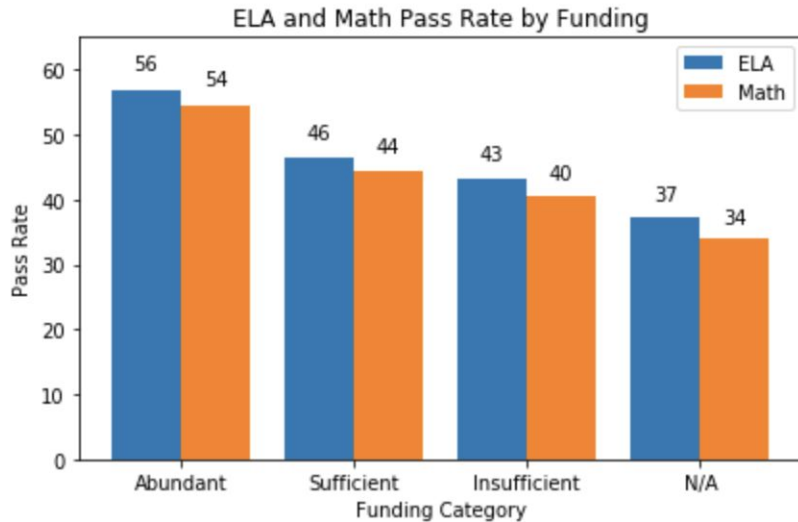
Null Hypothesis: IF funding for the arts does not affect student performance, THEN schools with stronger indicators of funding will not have significantly different math and ELA state test scores than schools with weaker indicators of funding.

ARTS MEASURES:

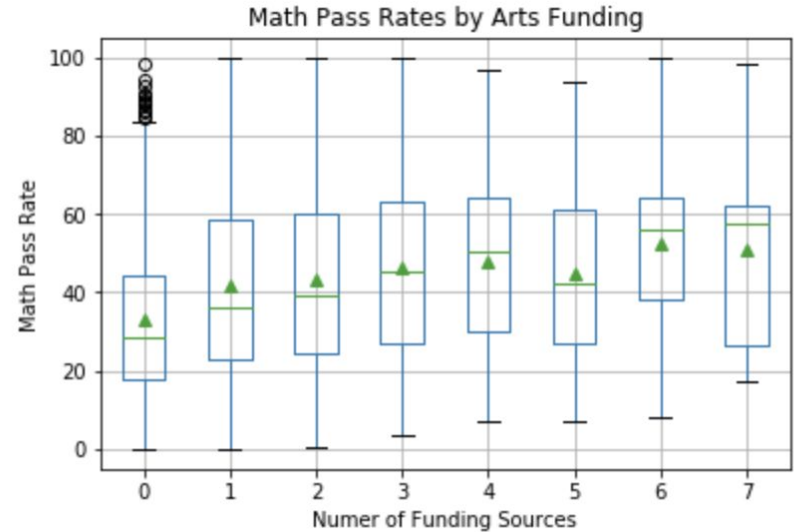
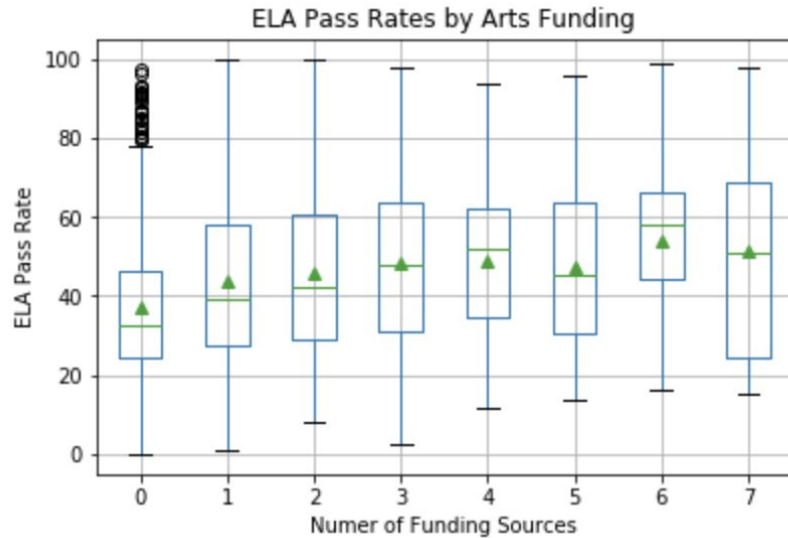
1. **Select one:** Funding for the arts is generally: *Abundant, Sufficient, Insufficient, N/A*
2. **Select one:** Funding over the past year has: *Increased, Decreased, Remained the Same*
3. **Check all the apply:** Did your school receive the following funding sources (non-DOE) to support arts education in this school year?

ELA/MATH PERFORMANCE MEASURES: Pass rate on math and ELA NY state tests

Question 2: How does art program **funding** affect state test results in NYC public schools?



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CONCLUSIONS:

- NYC public schools with more self-reported funding performed better on both ELA and math state tests.
- Schools with consistent funding performed better than schools whose funding fluctuated (regardless of whether the change was an increase or decrease).
- Schools with a moderate to high number of funders tended to perform better in both ELA and math state tests than those that had fewer sources of funding.

LIMITATIONS:

- Arts Dataset:
 - Used only part of the dataset and were limited to years with data dictionaries
 - Self-report format of questionnaire
 - Categorical/ordinal variables and no information about total funding
- State Test Score Dataset:
 - State test scores may not represent overall student performance or school quality
- Did not examine data at the year or grade level
- Uneven sample sizes across all measures

FUTURE DIRECTIONS:

- Break down the funding types (Is funding source more predictive than the others?)
- Examine performance at the grade level (Do certain grades benefit from the arts more than others?)
- Examine association between math/ELA pass rate and funding data from prior years' reports (Does the impact of arts funding take time to "kick in?")

Question 3: How do art program **hours** affect state test results in NYC public schools?

MOTIVATION: To better understand how art program **instructional hours** affect state test results to provide recommendations to schools in determining to continue working with external cultural art programs.

DATA:

- School Arts Survey (mandatory, self report) for school years: 2016-2017, 2017-2018, 2018-2019
- State Test Scores in ELA and Math for school years: 2016-2017, 2017-2018, 2018-2019
- N = 1118 schools

HYPOTHESES:

Hypothesis: IF art programs provided by Cultural Arts Organizations have an affect on state test results THEN there will be a statistically significant difference in ELA and Math state test scores between schools with instruction in art classes.

Null Hypothesis: IF art programs provided by Cultural Arts Organizations do not have an affect on state test results THEN there will be no statistically significant difference in ELA and Math state test scores between schools with instruction in art classes and without art classes.

INSTRUCTIONAL HOURS MEASURES:

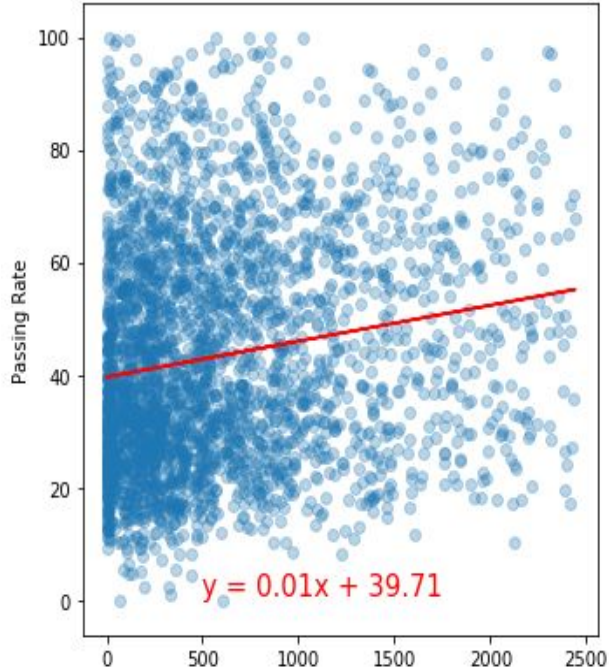
1. **Art forms:** Art classes offered: *Dance, Music, Theater, and Visual Arts*
2. **Hours:** Hours for each art form by grade
3. **Grades:** PK through Sixth grade

ELA/MATH PERFORMANCE MEASURES: Pass rate on math and ELA NY state tests

Question 3: How does art program **hours** affect state test results in NYC public schools?

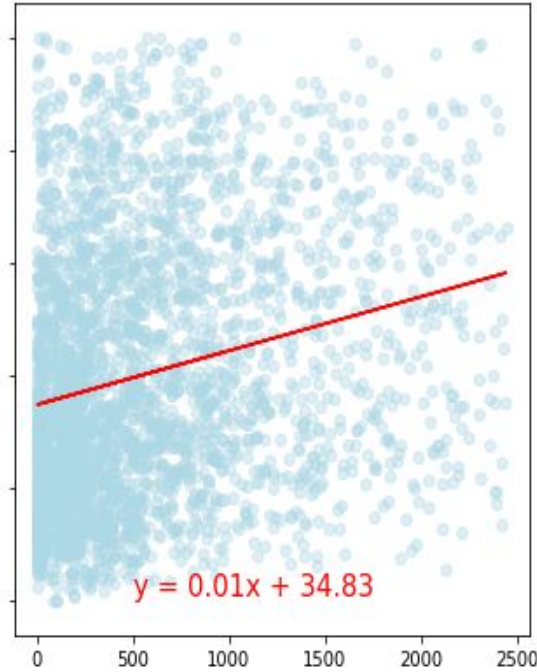
2017-2019 Instructional Hours vs Passing Rate

ELA Test



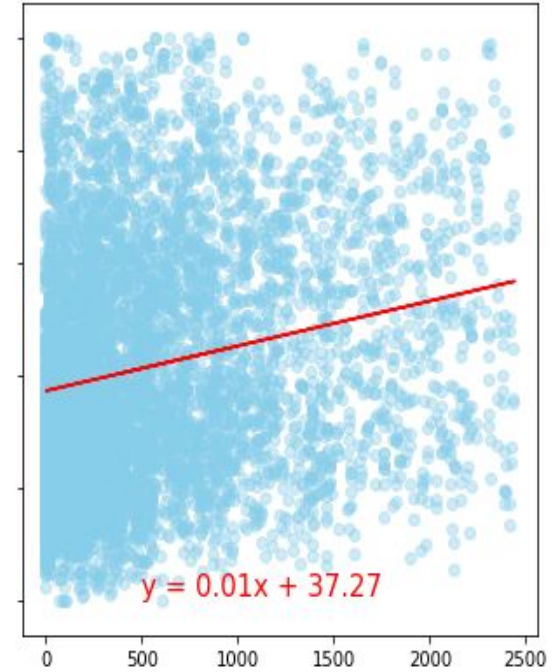
ELA r-squared value is: 0.03

Math Test



Math r-squared value is: 0.05

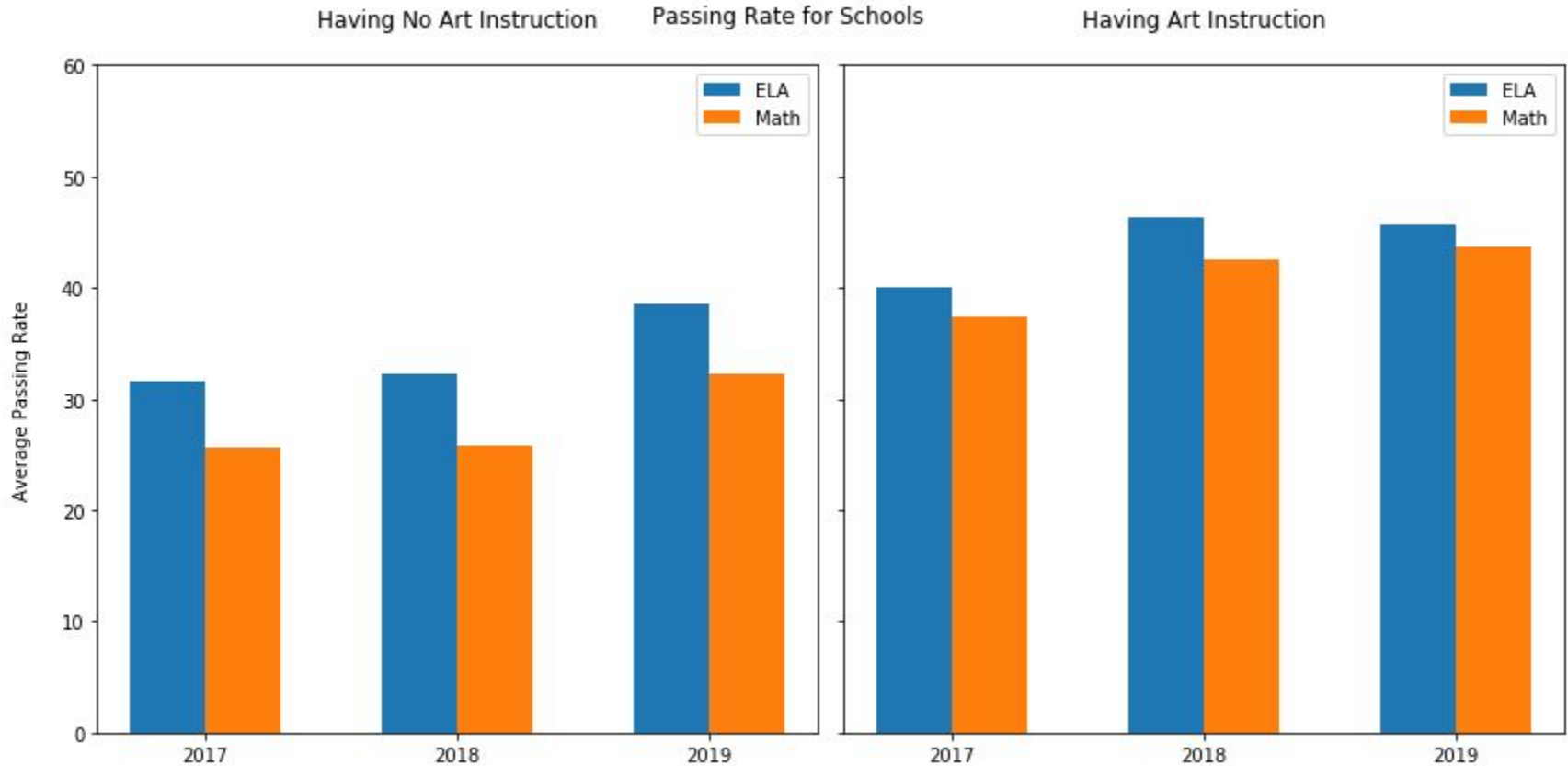
All Tests



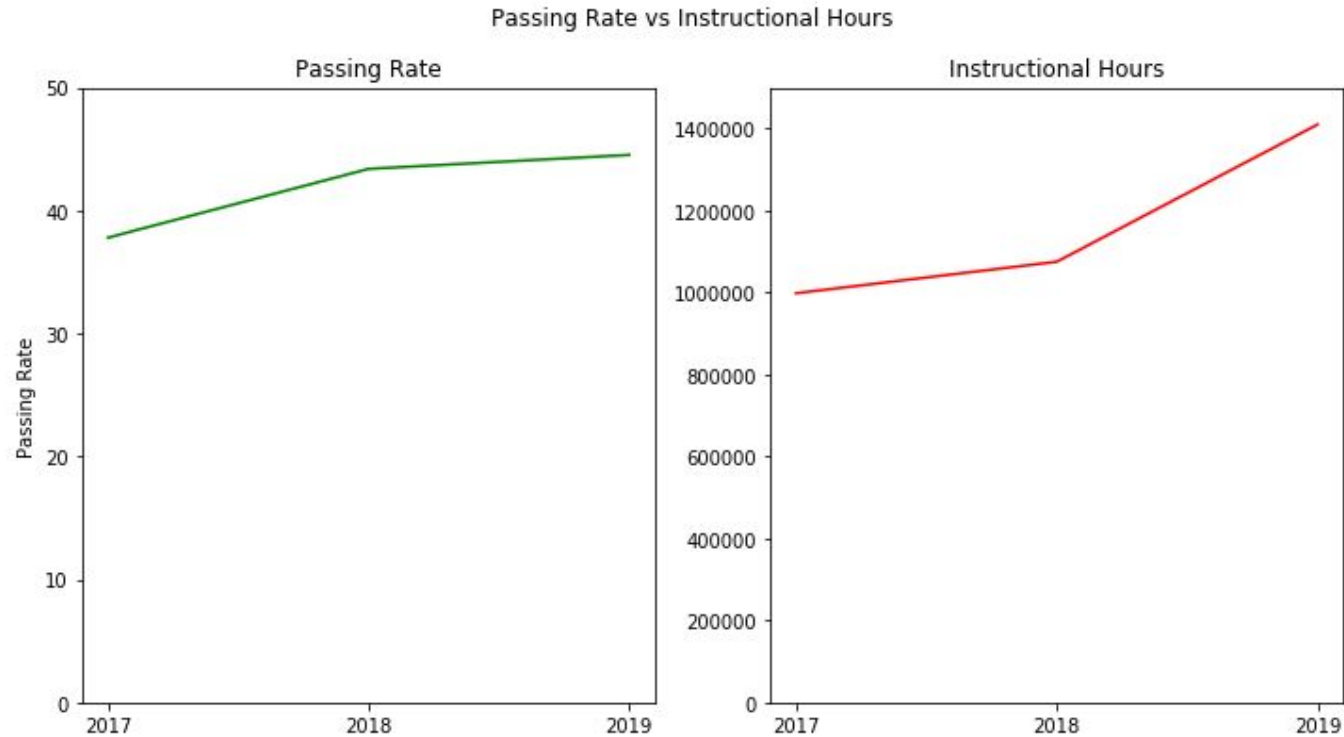
All r-squared value is: 0.04

Art Instructional Hours

Question 3: How does art program **hours** affect state test results in NYC public schools?



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CONCLUSIONS:

- Schools with art instruction performed better on ELA and Math state tests than schools with no reported art instruction.
- The different forms of art did not indicate a statistical difference.
- ELA test scores are affected slightly more than Math scores.

LIMITATIONS:

- Arts Dataset:
 - Hours were self reported and therefore might not be correct; were number of hours actually annual numbers.
 - The data by grade only had reported instructional hours for third to sixth grade.
 - Available data was only for three academic years and only for hours provided by Cultural Arts Organizations.
- State Test Score Dataset:
 - State test scores may not represent overall student performance or school quality

FUTURE DIRECTIONS:

- It would be better to get access to the STAR data for art instructional hours in schools
- Generate calculations for at what point does instructional hours actually affect performance