

The Effects of Increased Science Instructional Class Time on a Second Grade Classroom

Angela Marshall



Background: I believe science is closely aligned with mathematics. Current trends indicate less time is being devoted to science education (Blank, 2013). Science instruction involving concepts that are common to both science and math could affect student interest and understanding in both subjects. Skills such as collecting and analyzing data, using graphs and equations, as well as interpretation and reasoning, could prepare students for the future. The action research project involved adding additional science instructional time into the weekly curriculum of a second grade class.

Research Questions:

Primary:

How will an increase in science instructional time improve students' understanding of math content?

Secondary:

- How will an increase in science instructional time affect students' understanding of science content?
- How will an increase in science instructional time affect student interest, motivation and confidence in science?
- How will an increase in science instructional time affect student interest, motivation and confidence in math?

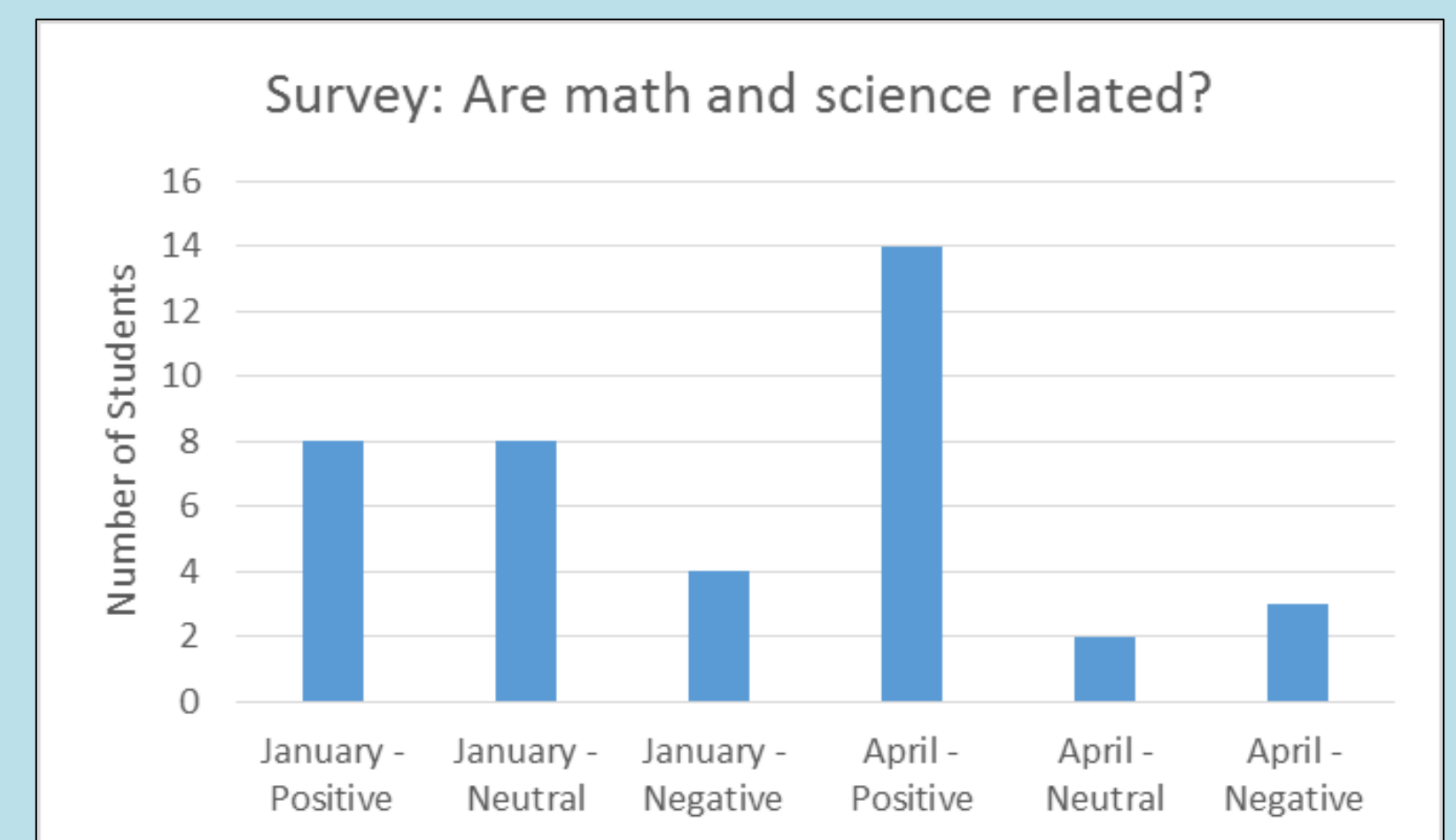
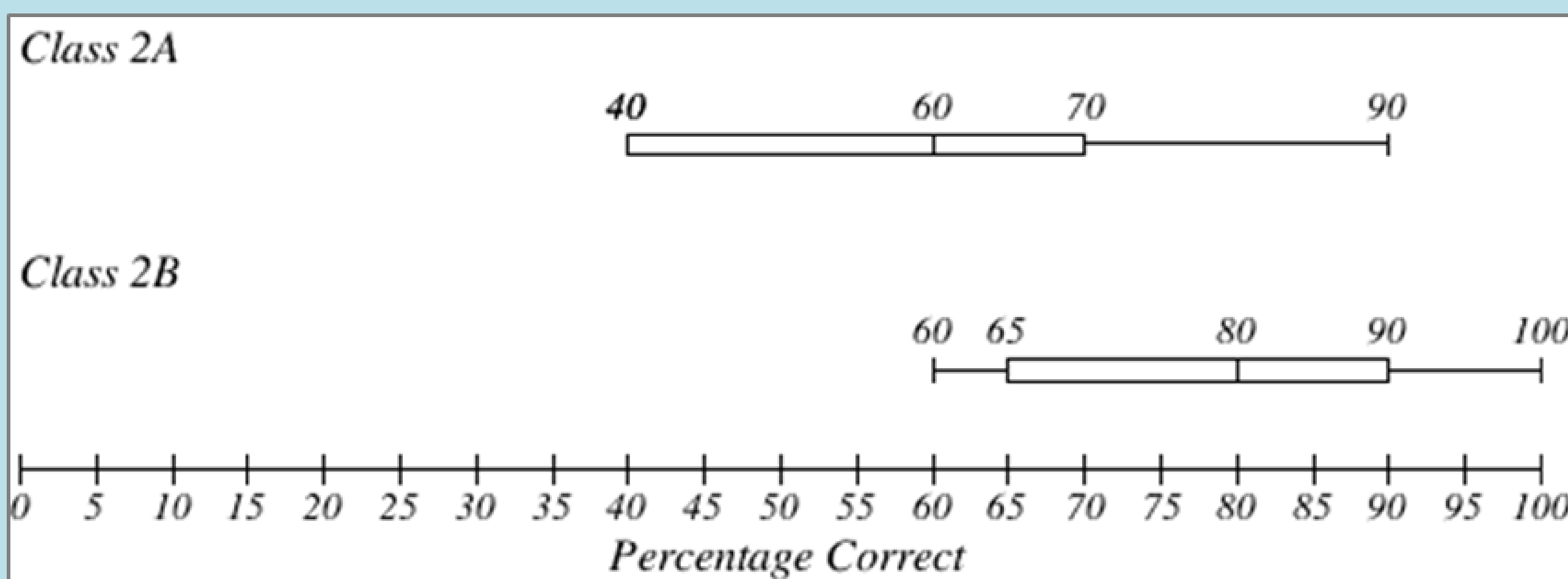
Methodology

| Research Questions | Data Source 1 | Data Source 2 | Data Source 3 |
|--------------------|---|---|-----------------|
| Primary | Scantron Math scores taken in January and May | Formative Assessments (student projects, probes and worksheets) | Teacher Journal |
| Secondary | Formative assessments (student projects, probes and worksheets) | Pre-Post Assessments | Teacher Journal |
| Secondary | Science Survey | Student Interviews | Teacher Journal |
| Secondary | Math Survey | Student Interviews | Teacher Journal |

Treatment

- Class 2A and Class 2B typically receive 45 minutes of weekly science instruction.
- Scantron, a computer-based standardized test, was administered in September, January and May to assess math knowledge.
- Surveys were used to analyze interest, motivation and confidence in math and science
- Treatment was carried out over a period of 12 weeks.
- After the January testing, Class 2B received 100% increase in science instructional time per week.
- Extra time allowed for supplemental lessons to be taught that were mathematically enriched.
- Assessments, projects and interviews were conducted during the treatment.

Results



Blessed Sacrament
School
Washington, DC

While post-assessment testing results appeared to support a correlation between increased science instructional time and math scores, statistical analysis was inconclusive. However, survey results did indicate that Class 2B was able to make a clearer association between the subjects of math and science as a result of the treatment. Additionally, student interviews indicated a strong preference for additional science instructional time.



Montana State
University
Bozeman, MT

References

Blank, R. K. (2013), Science instructional time is declining in elementary schools: what are the implications for student achievement and closing the gap? *Science Educator*, 97, 830-847