

Combining Financial Education with Mathematics Coursework: Findings from a Pilot Study

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Project Summary

In the 2017-2018 school year we implemented a pilot program for a course combining finance and mathematics. In this study, we analyze the assessment data from participants to evaluate the course's effectiveness. Results from this analysis show that students improved significantly in both math and finance, demonstrating that the program is effective.

Background

A large proportion of Americans are in a precarious financial situation. They engage in risky credit behavior and fail to accumulate sufficient saving. Previous research has demonstrated that poor financial decision making is correlated with a lack of financial knowledge (also known as "financial literacy"). As a result, several states have implemented financial education programs to improve the financial standing of young people across the U.S.

Research into these finance education initiatives found the results to be mixed. A number of studies have found that students taking such courses have displayed little or no improvement in financial knowledge or financial outcomes.

However, it's clear that certain kinds of education programs are effective: rigorous mandated finance courses produce much better results than shorter more superficial ones. In addition, taking additional mathematics coursework improves financial knowledge and financial outcomes. This suggests that a rigorous course that combines personal finance with mathematics could be especially effective.

Our Study

Based on this research we created a math class that teaches students the fundamentals of personal finance. It is designed to be taught by math teachers to high school juniors and seniors, with content at roughly the level of a typical algebra 2 course. In order to present the personal finance topics in a rigorous, conceptually-focused manner, we structured the sequence of study around the idea of the 'financial life cycle' and Modigliani's *Life Cycle Hypothesis*.

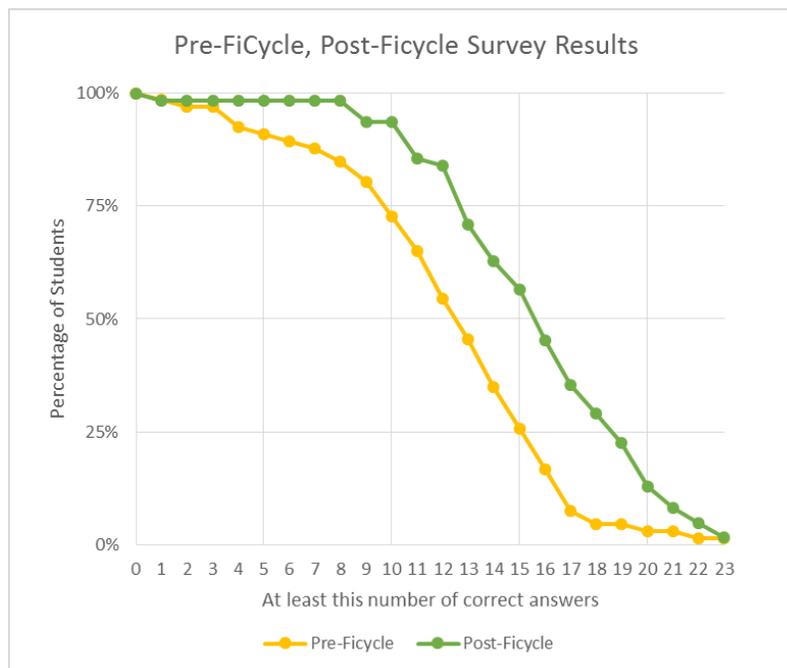
The pilot program was taught at three New York City schools to approximately 80 students. In order to evaluate the course, we tested students' knowledge in personal finance and mathematics, as well as their confidence level in addressing financial problems, in an assessment given at the beginning and at the end of the course.

Across the schools, the results were consistent, displaying improvement from the beginning to the end in all categories of question. The percentage of students who answered at least half of the 30 questions correctly, displaying proficiency, more than doubled from 25% before exposure to

the curriculum to 56% after exposure to the curriculum. The proportion of students with a high level of financial confidence increased from 36% to 46%. Comments on the course itself were also overwhelmingly positive: 90% of students said they would recommend this course to a friend, while 2/3 said they had already taken financial actions, such as opening a bank account and saving money. Many commented that it made them appreciate the importance of mathematics, and that taking the course would help them in the future.

We also surveyed teachers at the end of the course. One teacher wrote that the best part about teaching the curriculum was “instances of kids getting so engaged in the narrative and content.” Another teacher wrote that “the best part of the course was the copious amount of relatable material for students to be interested in.” The third teacher wrote that the best part was “the students told me they learned a lot and I also learned a lot too.”

Perhaps the most important marker of the success of our pilot project was that all three pilot schools decided to use the course again the following year and two of them more than doubled their enrollment.



Recommendations

Overall, the results of the pilot were extremely promising. They supported the findings of the research we reviewed and our view on the value of combining mathematics and finance. This motivates us to continue expanding the enrollment in a course of this type. Additionally, as a promising, but understudied, approach to financial education, it deserves further investigation by independent researchers. By researching and perfecting the best practices in financial education, we are hopeful that financial outcomes in the U.S. will be improved.