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Impact of SMG Program on Economic Literacy of High Schools Students, an Analysis of NAEP Results

Introduction

The Stock Market Game (SMG) program is the “flagship educational program” of the Foundation for Investor Education (*Success Stories*, 2006). Reaching over 600,000 U.S. students in grades 4 to 12, SMG “is a comprehensive, engaging, real world program that advances student academic achievement in the core disciplines and enhances understanding of investment concepts among learners of all ages” (Overview Session, SMG National Symposium 2007). This thirty year-old simulation provides students a virtual \$100,000 portfolio which they manage over a set period of time. Taking place under the supervision of a trained teacher, SMG teams research purchase, and sell stocks, securities and mutual funds. The Teacher Support Center provides teachers on-line access to the lesson plans and publications necessary to “meet the demands of their specific curriculum while answering the age old student question ‘Why do I need to learn this?’” (SMG Teacher Support Center, 2008). It is evident that the longevity, accessibility and student participation rates position The Stock Market Game to have a major impact on the financial and economic literacy skill of American students.

To date, too little specific research on the impact of the SMG on students’ economic and/or financial literacy knowledge is available. Survey results collected and published by The Jump\$tart Coalition for Personal Financial Literacy was, until now, the main source of such data. The results reported by the Jump\$tart Coalition indicate that since 2000, the first year of the study, students who participated in The Stock Market Game have consistently outperformed all other students who participated in all other forms of money management education. This includes those taking a money management course. In the latest published Jump\$tart report, *Financial Literacy: Improving Education, 2006* the mean score on the financial literacy test for all students was 52.4% while those participating in The Stock Market Game had a mean score of 55%. This led the authors to conclude that “consistent with previous years the 27.7 percent of students who participated in the stock market game in class did significantly better than other students on the financial literacy exam.” (*Financial Literacy: Improving Education, 2006*). As the country

recognizes the important role played by economics and finance in the global economy, states are trying to develop programs and courses to meet this emerging need. Therefore it is not unexpected that the National Assessment of Educational Progress (NAEP) has turned its attention to this academic subject.

The National Assessment for Educational Progress was established by Congress in 1969 to provide objective information on student achievement in a variety of subject areas. The Commissioner of Educational Statistics is responsible for carrying out the NAEP project. The National Assessment Governing Board, an independent body is responsible for “developing the framework and test specifications that serve as the blueprint for the assessments.” (*The Nation’s Report Card, Economics*, 2006). For the first time the NAEP tested twelfth graders’ economic literacy. Defined as an “understanding of how economies and markets work, what the benefits and costs of economic interaction and interdependence are, and that people have to make choices because resources are limited.” economic literacy is delivered as the content of stand alone courses or embedded in other course work. It is sometimes delivered through clubs or enrichment activities (*The Nation’s Report Card*, 2008).

The framework for the economic test established by the National Governing Board incorporates standards and benchmarks from the Voluntary Content Standards in Economics. The assessment uses a representative sample of 11,500 twelfth graders from 590 public and nonpublic high schools. It tests for three cognitive categories and measures content knowledge through a variety of questions set in various real world contexts. The results of the test found the overall national average scale score was 150, within the basic achievement level. (*The Nation’s Report Card*, 2008). The test also reported results for a variety of demographics and conditions that describe students and the context of their experience. Results for students who participated in The Stock Market Game in school are available on the website: <http://nces.ed.gov/nationsreportcard/>.

Review of the Results: Demographics

A careful review of the data indicates that students participating in The Stock Market Game for class* scored an average scale score of 159, nine points above the national average of 150. Importantly, students who reported participating in The Stock Market Game in class, 27 percent of the sample, scored significantly above the national average overall and in every category for which results are reported.

Gender

The report found that nationally, male students scored three points higher than female students 152 to 148. The results for students participating in the SMG were similar with

male students outperforming female students by 3 points 160 to 157. Male students who participated in the SMG outperformed male students who did not by 8 points 160 to 152. Females who participated in the Stock Market Game outperformed those that did not by 9 points 157 to 148:

Gender	Average Scale Score	Average scale score/with stock market game	Average scale score stock market game: never
Male	152	160	150
Female	148	157	146

*results for students not using the SMG for class were not included in this analysis

Race/Ethnicity

Notably, though participation rates vary for each demographic, in every demographic analyzed, students who reported participating in The Stock Market Game in class significantly outperformed similar students who reported they never participated in The Stock Market Game by 4 to 10 points.

Race NAEP 2001 Categories	Average scale score	Average scale score with stock market game	Average scale score stock market game: never
White	158	166	156
Black	127	134	127
Hispanic	133	138	134
Asian/Pacific Islander	153	160	151
American Indian	137	++	135
Unclassified	150	++	++

++ reporting standards not met

Disability

The study results for students with disabilities (Individual Educational Plan) are similar to every other group. IEP students who reported participating in The Stock Market Game in school scored significantly above both the national average 124 to 116 and that of those with disabilities who reported never participating in the Stock Market Game 124 to 115:

Students Classified Having a Disability	Average scale score	Average scale score: with stock market game	Average scale score stock market game: never
SD	116	124	115
Not SD	153	162	151

Poverty

Finally the data for students who are eligible for free or reduced lunch, the nationally accepted indicator for poverty, indicate that, once again those students who reported participating in The Stock Market Game significantly outperformed those who never participated it 141 to 132:

Title I School Lunch Program (poverty Indicator)	Average scale score	Average scale score with stock market game	Average scale score stock market game: never
Eligible students	132	141	132
Not eligible students	155	163	153

Review of the Results: Content and Practice

The NAEP report also provided results for students with a variety of in school educational experiences that impact on economic literacy. A variety of economic courses, economic course work in other courses, modes of instruction and classroom practice were included in the results. Surprisingly, students who identify themselves as participating in the SMG in class outperform students who identifying themselves as participating in full year or semester economic courses for every course except a full year of International Baccalaureate economics:

Full	smg	AP econ.	business	Consumer	Gen.	Gov't &	Honors	IB	Other
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year courses				economics	econ.	econ.	econ.	econ.	economics
	159	157	149	151	150	149	149	163	145

The pattern of these results continues when half year courses are analyzed. Students who report participating in the SMG outperform students who report participating in semester economic courses including IB economics:

Semester courses	smg	AP econ	business	Consumer econ.	Gen, econ.	Gov't & econ.	Honors econ.	IB econ.	Other economic s
	159	155	153	153	152	147	152	148	154

A review of the results for modes of instruction found that 27 percent of students surveyed reported participating in The Stock Market Game the highest percent of participation for any mode of instruction. The results indicated that the average score for students who reported participating in the SMG in class significantly out performed those that reported every other mode of instruction 159 to 140 or less:

Content & practice	smg/ simulation	Academic competition	clubs	DECA	Future B L of America	Junior Ach.	Econ. activity	Student credit union	School store
Average score	159	137	126	134	123	135	140	123	142

Though causal relationships cannot be drawn for the NAEP test data, the positive trends seem to indicate that the SMG has significant impact on the performance of students taking the NAEP test for economics. In every demographic group analyzed the data indicates that without exception students who participate in the Stock Market Game outperform those that report they never participated in it and the average score for each category.

Conclusion

The need to turn our national attention to economic literacy was never more necessary than now. The U.S., economy ever more dependent on global influences, requires students to know and be able to use economic information to support their daily activity. Districts throughout the country are looking for ways to incorporate financial and economic concepts and skills into the educational lives of students. The first NAEP test for economics is one more important indicator of this national concern. Designed to identify patterns and trends in U.S. student achievement, this test clearly demonstrates the need for continued attention on economic literacy. Yet, it seems clear that students who participate in The Stock Market Game in school outperform similar students who do not. More interestingly, these students outperform students who participate in courses, programs and in school economic activities. While more study is needed it is evident from the NAEP and Jump\$start survey results that the SMG has positive impact on participating students' economic knowledge and concepts. Districts and schools interested in the economic future of their students are advised to investigate The Stock Market Game as a tool to enhance economic and financial literacy for their students.

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