MONEY SAVVY KiDS™
Basic Personal Finance Curriculum

Evaluative Report
Do Learning Gains Persist?
Cleveland

August, 2005

Eric A. Hagedorn, Ph.D.

Hagedorn Evaluation Services
El Paso, TX

Money Savvy Generation®

Introduction

The purpose of this study was to investigate the persistence of the learning gains and improved attitudes of young children in an urban public school who had participated in the Money Savvy Kids[TM] program. Roughly 200 children in one urban public school in the mid-west participated in this study. Their five teachers received preparation to use the Money Savvy Kids[TM] curriculum by participating in a one-day training workshop during the fall of 2003. The teachers received the curricular materials (eight lessons) and the piggy banks for their students. They were asked to implement the program in their classrooms and to use a pre-and post test with the students. By the spring of 2004, 171 of these students had completed the pre-test and 127 had completed the post-test. The positive changes in their knowledge and attitudes will be described in more detail in the results section. To determine if these positive changes persisted, 94 of these students were retested using the same instrument, approximately one year later.

Methodology

The Money Savvy Kids[TM] Assessment was used during each of the three administrations: pre, post, and follow-up. This instrument is a 10 item, Likert scale instrument (see Appendix A) measuring. A three point response format was used: a smiley face for agree (with a value of 3), a straight mouth face for don't know or unsure (with a value of 2) and a frown face for disagree (with a value of 1). Dr. Mark Schug of the Center for Economics Education at the University of Wisconsin – Milwaukee, developed the assessment to measure student beliefs about savings habits, handling money, the role of business, etc. A literacy expert, solicited by Dr. Schug determined that the questions are at roughly a second grade reading level. This instrument has been successfully used to evaluate the Money Savvy Kids[TM] program's effectiveness with a wide variety of student participants (urban, suburban, public, and private).

As the completed surveys did not include student names, independent samples statistics would be used to determine if statistically significant changes occurred in mean item responses from pre to post and then from post to follow up. If the data were normally distributed (as determined by Shapiro-Wilk tests of normality), the appropriate test is the independent samples t-test. If the data differed from the normal distribution, the appropriate test is the non-parametric Mann-Whitney U test. Any statistically significant changes from pre- to post would be identified and interpreted. The effect sizes for these significant changes (an interpretation of "how big" or how meaningful a change is) would also be calculated.

Conclusions

Overall, these data indicate what other studies of the Money Savvy Kids™ program have shown: the program is effective in positively affecting students' attitudes and knowledge about spending, saving and investing money. In this sample, from one public school, the pre to post data indicate statistically significant improvements on four out of ten items. The noteworthy result of this particular study, however, is that when participating students are re-assessed, approximately one year later, the learning gains remain. In addition, accurate perceptions which were identified during both the pre and post tests have not changed. This is particularly noteworthy in the case of item 3 ("It is important to have the things I want when I want them") because of strong societal messages contrary to the notion of delayed gratification.

Further persistence studies are needed to demonstrate whether these findings hold in other demographic settings and in settings where more pronounced learning and attitudinal improvements have been made. By "more pronounced," I specifically mean larger positive changes on more items, and especially those items to which students responded inaccurately on the pre-test and then accurately on the post-test.

Results

The average item responses and standard deviations on the pre, post, and one year follow up - tests are shown in Table 1. Because the responses to these tests were not normally distributed (Shapiro-Wilk statistics significant at less than one chance in a thousand) a Mann-Whitney U test was used to analyze which items showed significant changes from pre to post, and from post to follow-up.

Table 1. Item response averages and standard deviations for independent samples data.

	Pre (N=171)	SD	Post (N=127)	SD	Follow (N=94)	SD
Item 1	2.77	.448	2.83	.394	2.89	.310
Item 2	1.37	.641	1.22[1]	.548	1.21	.505
Item 3	1.28	.606	1.24	.587	1.22	.589
Item 4	2.77	.585	2.76	.626	2.85	.387
Item 5	2.49	.739	2.35	.801	2.45	.682
Item 6	2.26	.865	1.72[2]	.773	1.82	.789
Item 7	2.04	.563	1.63[2]	.743	1.76	.772
Item 8	2.75	.562	2.72	.587	2.78	.444
Item 9	2.85	.448	2.86	.393	2.82	.463
Item 10	2.09	.842	1.83[3]	.746	1.71	.771

[1] p = .016
[2] p = .000
[3] p = .006

While there were four statistically significant changes in mean items scores from pre to post, there were no statistically significant changes from post to follow-up. The item score changes are summarized in Table 2. Note that the relatively stable responses to items 1, 3, 4, 8 and 9, on average, reflect accurate or desirable perceptions (see Appendix A).

Table 2. Significantly changed item response averages and effect size of changes.

Item	Mann-Whitney U value	Exact 2-tailed significance	Effect size
2. Saving money is greedy.	9562.5	.016	-0.249
6. It is best to put the money you save in your room at home.	7181.0	.000	-0.653
7. When I invest in stocks, I will always make money.	7279.5	.000	-0.635
10. When I save money it helps me but not others	8928.5	.000	-0.324

What Table 2 tells us about student responses to individual items.

The average response of the students to item 2 changed from 1.37, indicating average disagreement, to 1.22, which is more strongly disagreeing. This indicates an improvement in student understanding, because it is appropriate for students to disagree with this item. The exact two-tailed significance implies that this change in average score could only have occurred by chance, 16 out of 1000 times. The -.249 effect size indicates that this decrease in score is roughly 25% of an average standard deviation in size.

The average response of the students to item 6 changed from 2.26, leaning towards uncertain from the agreement side, to 1.72, which while still leaning towards uncertain, does so from the disagreement side. This indicates an improvement in student understanding, because even though the average post-test score is uncertain, this average decreased from the pre-test because more students disagreed with this item, which was the learning objective. The exact two-tailed significance implies that this change in average score could only have occurred by chance, less than 1 time in 1000. The -.653 effect size indicates that this decrease in score is 65% of an average standard deviation in size.

The average response of the students to item 7 changed from 2.04, on the agreeing side of uncertain, to 1.63, which is now on the disagreeing side of uncertain. This indicates an improvement for students, because it is more appropriate for students to disagree with this item. The two-tailed exact significance implies that this change in average score could only have occurred by chance less than 1 out of 1000 times. The -.635 effect size indicates that this improvement is roughly 64% of an average standard deviation in size.

The average response of the students to item 10 changed from 2.09, very close to uncertain, to 1.83, which leans more towards disagreeing. This indicates an improvement in student understanding, because it is more appropriate for students to disagree with this item. The two-tailed exact significance implies that this change in average score could only have occurred by chance, less than 6 out of 1000 times. The .32 effect size indicates that this improvement is roughly 32% of an average standard deviation in size.

Appendix A: Money Savvy Kids^{TM} Assessment

Directions: Teachers, please read each of the following 10 sentences together in class. Explain the following directions to the children: If you *agree* with the statement, use your pencil to circle the *face with the smile*. If you *don't know* or are *unsure* about the statement, circle the *face with the straight mouth*. If you *disagree* with the statement, circle the *face the frown*. Please circle only one face for each question.

1. I believe I know a lot about how to handle my money.

2. I believe that people act selfishly when they save money.

3. I believe it is important to have the things I want when I want them.

4. I believe it is important to save money for the things that I want to buy in the future.

5. The thing I enjoy most about earning money is getting to spend it right away.

6. It is best to save your money in a secret place in your bedroom.

7. I believe that some places to put my savings - - like putting money in banks - - are safer than others.

8. I believe business people help others by providing them with goods and services to buy.

9. It is important for families to keep money in real banks.

10. I believe saving money helps me but not help anyone else.