

Simulated Money Management Training for At-Risk Youth

Lee White

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A. General Scientific and Technological Aims

Troubled and disadvantaged youth face two opposing worlds: the street and mainstream society. The goal of most service providers is to guide youth to the latter by integrating them into the workforce. This requires learning job skills, but also developing a foundation of living skills – life and social skills. It's interesting to note that youth involved in street culture actually possess a great many life and social skills, but they exist in a myopic realm of impulse and survival. The tipping point for many of these youth to be able to function in mainstream society is to understand and feel comfortable with the workplace. The major providers of services to youth in foster care, the juvenile justice system, Job Corps, and alternative high schools are increasingly interested in comprehensive life skills programs to complement their focus on vocational, academic, and mental health services; and especially, programs that recognize the importance of building independent skills by promoting positive attitudes toward the world of work.

Vstreet.com is filling this need. The Vstreet Web site was developed by Northwest Media through a Small Business Innovation Research fast-track. It is a virtual community dedicated to life skills training for at-risk youth that is both a Web site and a suite of stand-alone CD-ROM and DVD products spawned from the site. Vstreet has proved to be highly effective with this population and is gaining acceptance among national and state service providers.

Vstreet has extensive curricular material on employment and the workplace, but as yet there is little on money management. A next step in the evolution of Vstreet and its associated products, and the primary technological aim of this project, is to develop a full-scale training program on managing money that youth can generalize to the real world. Money management is a much sought-after area of skills training among youth service providers.

The proposed money management program will consist of two interrelated components: 1) a full-length interactive multimedia *training curriculum* on managing money and 2) a *simulated interactive environment* where youth can apply the skills to manage their life on Vstreet. The simulation environment will use all the current resources on Vstreet and integrate them into a dynamic system in which users would have the virtual power to earn and spend money while learning to be accountable for staying within a balanced budget. In Phase I, we developed the core training component of the curriculum which focuses on budgeting.

The scientific aim of the project was to test the effectiveness of the curricular training with a group of Job Corps trainees in the Pacific Northwest to assess its impact on money management knowledge, attitudes, and confidence regarding money management, as well as the program's usability. We also wrote the design document (technical blueprint) for the simulation environment with game simulation experts.

In Phase II, we will produce the simulation environment for the Web site. The curriculum training will be produced for both the Web site and as a stand-alone product on CD-ROM. The simulated interactive environment will appear only on the Web version.

B. Phase I Research Activities

Product Development

Product development entailed two goals: 1) developing a Web-based interactive curriculum for youth at-risk on money management skills and 2) writing a concept paper for the game simulation portion of the program to be developed in Phase II.

Web-Based Interactive Curriculum

To begin the process, the content development team, led by the principal investigator, gathered and reviewed educational guidelines for money management skills from three states

as well as the skill set on money management from the Job Corps ETA Standards-Competencies for Independent Living. The original content development team was broadened to include Dr. Brad Klontz, a nationally recognized expert in the psychology of money and specialist in working with the spending habits of youth at-risk. A draft script was produced, including interactive exercises and supplemental handouts.

Packets containing the draft script, a list of the specific points to be covered by the curriculum, and a video storyboard draft were sent to a panel of five financial and educational experts for review: Paula Billups, President of Educare Technologies; Johanna De Jesus, Youth Development Consultant; Mary Furnas, President of Furnas and Associates Consulting Group; Jayson Green, an entrepreneurship teacher through the National Foundation for Teaching Entrepreneurship; and Lisa Wilson, The Mentoring Center of West Palm Beach, Florida. Their feedback was generally positive. Reviewers felt that the script was effective and that all essential topics were covered. Several of the reviewers provided suggestions for changes in the script's language, as well as some re-organization and clarification of the content. All feedback from the panel members was reviewed by project staff, and revisions were made to address the suggestions. The script was finalized and prepared for production process.

Process for Developing the Media Materials

- Voice talent was auditioned, hired and recorded.
- A draft story sound track was assembled.
- The story content and interactive exercises were animated and assembled using Flash technology.
- Interactive exercises were programmed
- A draft version of the production was reviewed by a focus group of at-risk youth (see description of the alpha test below).
- Final editing of both interactive exercises and content was accomplished.
- The Web skin and navigational 'remote control' panel were added.

Technical Development

All audio was recorded in-house, in studio sessions according to previously approved scripts. The sound engineer cleaned, sweetened, filtered, and edited audio tracks on Cool Edit Pro 1.2a. Sound foley added to the sound track.

The Flash animator used final audio files and graphic elements to create a first rough-cut according to the script, using Macromedia Flash MX software. The entire team then reviewed this version and made appropriate revisions until reaching final approval.

The bulk of the production process was conducted using the Flash environment for quick turnaround for Web and CD production and revision. Once approved, all image files were compressed for bandwidth economy and authored for Web. The graphical elements – navigator, buttons, etc. – were developed and finalized for Web usage.

Vstreet-G Game Concept Paper

The development team, including the Principal Investigator, programmer, and artists worked with an independent serious game designer/developer, Michael Thornton Wyman to develop the guidelines for the game. The *Vstreet-G Game Concept* paper was drafted and then reviewed by Josh Whitkin, a game arts expert and professor of game development at Murdoch University in Australia, and Dr. Brad Klontz. The concept paper was then finalized.

Alpha Test with At-Risk Youth

Five youth, recruited from a life skills program for post-graduate special education students in Eugene, Oregon's 4J School District, participated in the alpha test. The group, which met at the offices of Northwest Media in Eugene, included four males and one female ages 18 and 19 years. All five were White; three identified their ethnic background as Not Hispanic or Latino, one as both Hispanic and Not Hispanic, and one as unknown. All had finished high school or a GED, and one was in college. Participation was voluntary, and informed consent was obtained.

The goal of this activity was to gather feedback on the measures to be used in the evaluation study and on the program itself. At the outset, participants completed drafts of the study questionnaires: background information, knowledge about money management, and attitudes and confidence related to money management. Based on responses to the 31-item version of the knowledge questionnaire, 6 items were dropped (4 that were judged too easy, one that was poorly written, and one that covered material dropped from the course), so the final questionnaire for the study included 25 items.

Participants next viewed parts of a preliminary version of *Money Medical: Healthy Money Management*. Lee White, project PI, showed them portions of five of the curriculum's seven classes, and they completed all of the curriculum's online interactive exercises. After each segment, Mr. White asked them for feedback. Following the first segment, they commented that it provided good information, but the pace was a little slow. They thought it would be appropriate for a somewhat younger audience, perhaps ages 16 and under. As they progressed through the remaining segments, they became more engaged, and by the end they decided that the appropriate target audience for the program was youth ages 16-18. Overall, they enjoyed the program, thought it was valuable, and liked the interactive exercises.

The alpha testing activity lasted about 1½ hours, and at its conclusion each student received \$20.

Instructional Content

In Phase I we wrote, produced, and evaluated a foundational course called *Money Medical: Healthy Money Management*. The program content is presented via an integrated sequence of animated teen stories, interactive exercises, and printable handouts. The curriculum consists of a course introduction, a self-assessment exercise on money management health, and seven instructional classes. Below we provide a description of the course content for all the curriculum segments.

Introduction: Healthy Money Management

- Tells the stories of how two teens smash into a financial wall and injure their financial health. Dr. Buck, a financial wizard and guide that appears as a projected image, helps them wake up to what is causing their financial problems and to start thinking about healthier ways to manage their money.

Self-Assessment: Your Money Health

- Gives viewers a chance to assess their own money health, using the Financial Health Scale (FHS). Viewers hear instructions on how to use the interactive format of the questionnaire items and then respond to the questionnaire items presented one at a time, audio-visually. Viewers are given a brief positive encouragement from the program host to continue completing the questionnaire every 5 items.

The FHS is a 20-item scale derived originally from a pool of 72-items constructed by a group of financial planners and doctorate level psychologists (Klontz, Bivens, Klontz, Wada, & Kahler, 2008). Items inquired about different aspects of feelings and behaviors related to money and personal finances. A factor analysis indicated that 20 of the items represent a single factor referred to as "financial health." Initial test-retest reliability and internal

consistency findings were promising: test-retest reliability with a 1-week latency was .94; Cronbach's alpha was .95. Items are scored on a 5-point Likert-type scale from "strongly agree" to "strongly disagree."

The questionnaire is designed to assess financial health in family functioning around money, spending, saving, meeting financial goals, and guilt, shame or pride in financial situations and behaviors. Scores ranged from 20 (worst) to 100 (best). Scores were organized into five categories and viewers received contingent feedback based on their score. Below is a list of the categories and the associated feedback viewers received:

- Score 20-39
Your money situation is critical! Your money scene is out of control. Changing your attitude towards money will keep you from hitting the wall. Dr. Buck's class can definitely help you make that change.
- Score 40-59
Your money health is on the edge. Yo, check yourself. Try setting some clear goals for your money. The good news is, you can get it together with the help of Dr. Buck's class.
- Score 60-79
You're on the right track, but you can take your financial health to the next level. Dr. Buck's class will give you the tools to polish what you know about yourself and money.
- Score 80-100
You clearly have a handle on money. In Dr. Buck's class, keep on working towards your financial goals and fine tune those money skills. Right on.

Class 1: Money Medical

- Understanding Money: Six teens attend their first class on money management, taught by Dr. Buck. The class develops an understanding of the value of money by viewing and discussing a video story.
- Time is Money Exercise: Viewers answer three interactive questions to help them understand the relationship between their time and money, and the choices they make. Each question asks how much time they would be willing to work to earn a particular item. Viewers choose one of three responses, from less time to more time. When they click on a response it automatically gives them the amount of money they would have to earn per hour for the amount of time they indicated they were willing to work. After answering all the items, the program host gives some tips on how to value and save time and money.
- At the Café: Two of the teens meet at a café after class. One introduces the other to Money Anonymous. It's a casual group where teens meet to learn about their "money scripts" – how they think about money and how that influences what they do with it.
- Money Anonymous – Meeting #1: Teens introduce themselves and why they are in the group. Then they read a pledge about accepting responsibility and improving their money scripts. During the "Speak Out" teens reveal their money scripts, the problems they created, and how they working on solving them. They close by looking at a lesson from the Big Book about one major theme in money scripts: denial.

Class 2: Money Medical

- Spending Choices: At this meeting Dr. Buck talks about what a budget is, how it can help you reach your goals, and how it is affected by spending choices. Then Dr. Buck presents the first basic skill on budgeting: determining your "needs" vs. "wants."
- Needs and Wants Exercise: The program host explains the difference between a "need" and a "want" and then presents a list of 5 expenses related to the home living. Viewers click whether each item is a "need" or a "want" for them, or whether it's something they are not sure about. The next set of 5 expenses deals with needs and wants related to savings. The

third set deals with transportation expenses.

- Lifestyle: Dr. Buck reinforces the importance of budgeting for “needs” before “wants.” Dr. Buck then addresses the importance of understanding the impact of your lifestyle on your budget and how to make changes in your lifestyle fit with your budget; for example, drinking lots of soda everyday. Their assignment for next class is to learn to use a tracking envelope.
- How To Use A Tracking Envelope: One of the teens from the class explains how to use the tracking envelope to keep a record of daily expenses.
- Tracking Envelope *Printout*: Viewers print their own tracking envelope and are encouraged to try it out for themselves.
- Money Anonymous – Meeting #2: One teen “speaks out” about money problems they have been having. The lesson in the Big Book is on “The ABC’s of Spending Money.” The class reviews three main concepts about managing money: (A)nalyze, (B)udget, and (C)ompare.

Class 3: Money Medical

- Income and Bill Cycles: Dr. Buck shows a video to the class that compares a monthly paycheck to a whole pizza. Slices of the pizza represent different categories for expenses. Knowing how divvy up the slices represents how to budget expenses to your current income. Dr. Buck then introducing the concept of paying cycles, or the frequency with which certain bills need to be paid.
- Cycles Card Sort *Exercise*: Viewers read a series of cards from a deck that describes a type of money transaction. They have to drag the card into the correct box on a grid that has two rows: income or expense; and four columns: daily, weekly monthly, occasional. If the viewer is correct, the card sticks, otherwise, they have to try again.
- Exploring Income: Dr. Buck talks about different sources that make up total income, and then analyzes the different deductions and information on a pay stub.
- Paycheck and Pay Stubs *Exercise*: Viewers look at a pay stub and have to answer a series of questions to determine if they understand the information on it. Viewers drag the information from pay stubs and paychecks to a blank in a statement. They get immediate feedback on whether their answer is correct or not.
- Total Income *Printout*: Dr. Buck directs students in the class to view a form to keep track of income sources. Viewers can print and use the form.
- Money Anonymous – Meeting #3: During the “Speak Out” teens listen to each others’ money stories and develop an understanding of how their beliefs and attitudes about money – their money scripts – influence their situations, for good and for ill. The discussion then turns to how to create positive changes in money scripts.

Class 4: Money Medical

- Expense Categories: In this meeting, Dr. Buck and the class explores and refines techniques for keeping track of expenses, including creating and organizing categories for expenses on a summary sheet.
- Category Pizza Printout: Presents a visual example of how monthly expenses are organized using the slices of a pizza.
- From Envelope to Categories *Exercise*: A mentor and a teen get started on working out the nitty-gritty of taking saved daily receipts from an envelope and deciding how to sort them into appropriate expense categories on the summary sheet. After doing a few of them, the viewer takes over and has to place receipts into appropriate categories. The viewer receives immediate feedback about his or her choice. The last step is to see the totals for each expense category. Back in the class, Dr. Buck asks teens to fill in their own summary sheet with expenses.
- Summary Sheet *Printout*: Viewers can printout a blank summary sheet and use it to track

their own expenses.

- Money Anonymous – Meeting #4: Teens share their recent successes and problems. Just talking about problems can help identify problematic money scripts and keep things heading in the right direction.

Class 5: Money Medical

- Fine-tuning Categories: Dr. Buck goes into some detail on how to build a budget by using the information that has been tracked and transferring it to a budget sheet. Dr. Buck suggests some adjustments, such as creating a category for savings and debt interest.
- Budget Sheet *Exercise*: Now it's time for viewers to take the information from a summary sheet and transfer onto a budget sheet. Once the categories and totals are transferred, a mentor helps a teen figure out how to plan for the next month's budget by making adjustments to the previous month's totals based on expected changes. Viewers follow through by adding or subtracting expected events to the budget and making sure the total expenses don't exceed the total income.
- Building A Budget: Dr. Buck gives some parting advice and then asks the class to build their own budget for next month.
- Budget Sheet *Printout*: Viewers print and fill out their own Budget Sheet.
- Money Anonymous – Meeting #5: A teen speaks out about her money script and the group helps her figure out how to make positive changes. The Big Book topic of the day is how certain attitudes limit our choices.

Class 6: Money Medical

- The Costs and Benefits of Borrowing *Exercise*: Dr. Buck and the class have a candid talk about costs and benefits of debit and credit cards. Viewers respond to a series of statements about borrowing money by determining whether something is a cost or a benefit. They get immediate feedback about their choice.
- Loans: Interest & Penalties: The class identifies how debt can add up when borrowing money. The discussion covers what interest is, tips on shopping for a loan, when to borrow and what to borrow for, and how to avoid penalties.
- Credit or Cash? *Exercise*: Viewers are presented with a series of choices in which they have to figure out what the smarter choice of payment is, credit or cash. They receive immediate feedback about their choice.
- Borrowing Tips *Printout*: A printout that reviews the costs and benefits of borrowing money.
- Money Anonymous – Meeting #6: A teen speaks out on how her money script has limited her choices and her desire to change. The class studies "The Steps of Change" in the Big Book.

Class 7: Money Medical

- Banking and Credit Reports: Dr. Buck shows the class a video on how to choose a bank, and then talks about the importance of managing your money while it's in the bank, understanding credit reports, how to improve your credit rating, and avoiding scams. Dr. Buck closes the program with a few key tips on managing money.
- Credit Reports *Printout*: A review about credit reports.

Project Evaluation

The purpose of the study in Phase I was to evaluate the effectiveness of an interactive multimedia (IMM) training course on money management, titled *Money Medical: Healthy Money Management*. The course comprises the core training curriculum of a program which, in Phase II, will include a serious game simulated environment that replicates real world financial demands and responsibilities on Vstreet.com. Vstreet is an online training venue for at-risk

youth on life skills that was developed by Northwest Media through SBIR funding. In Phase I, we wanted to assess whether the online training was effective in improving youths' knowledge, attitudes, and confidence on budgeting. Because the serious game portion of the program will not be developed until Phase II, we used a stand-alone CD version of the core curriculum for the feasibility study.

Participants

Study participants were students enrolled in educational and vocational training at a Job Corps (JC) center in the Pacific Northwest. The Job Corps provides comprehensive services at 122 centers to about 62,000 economically disadvantaged youth annually (U.S. Department of Labor, n.d.). This JC center had a total of 216 trainees.

Our final sample included 88 participants: 43 in the treatment group and 45 in the control group. They ranged in age from 16-24 years, with a mean sample age of just under 19 years. Of the 88 students who completed the study, 26% were female. Racially, 67% were White, 8% Black, nearly 6% American Indian or Alaska Native, and 1% each Hawaiian/Other Pacific Islander and Other; 8% reported being more than one race; and another 9% either reported their racial background as unknown or omitted the item. There were no Asians among the study participants. Ethnically, about 10% reported being Hispanic or Latino, 54.5% Not Hispanic or Latino, and 2% both Hispanic and Not Hispanic; 33% of the sample either reported their ethnic background as unknown or skipped this item. With reference to education, 54.5% indicated that they had completed high school or a GED; another 11.4% were currently working toward a GED; about 18% reported having completed 11th grade; and the remaining 16% reported either 9th or 10th grade as the highest level of school they'd completed. (See Appendix B, Tables 1 and 2, for further description of the sample.)

Participation in the study was voluntary. Participants received \$10 for completing the pre-test and another \$10 for completing the post-test. Participants were also randomly chosen as winners of daily door prizes valued at \$5.

Procedures

One hundred trainees at the Job Corps center were randomly chosen to participate in the study and assembled in a gym. A staff person from Northwest Media described the study to them. All in attendance expressed interest in participating and were given a consent form. A staff person read the consent form aloud and answered questions about the study. Participants were then asked to sign the consent form.

All participants completed the pre-test assessment battery at the assembly meeting and the post-test assessment battery at an assembly meeting following the final class. The pre-test battery included the following questionnaires (see descriptions below): *Background Information*, *Knowledge of Money Management*, *Attitudes and Beliefs about Money*, and *Money Skills Confidence*. The post-test battery also included a *User Satisfaction Questionnaire*.

To control for extraneous sources of variability as well as threats to internal validity, we randomly assigned those who agreed to participate to either a treatment condition or a control condition. Participants in the treatment group participated in a group viewing of the *Money Medical* module on CD in a classroom setting. Participants attended four classes, each 1 hour and 45 minutes in length, given over four consecutive days. Classes were conducted by an instructor who facilitated the overall activity, which included brief reviews and discussions of key points.

Participants in the standard-of-care control group attended their regularly scheduled classes and activities. These participants were offered the same curriculum after the study was completed.

Measures

(All study measures were paper-and-pencil, self-report measures, and copies are included in Appendix A.) 1) *Background Information*

A 5-item background information questionnaire was developed by project staff and used to obtain information regarding participants' gender, age, ethnic and racial background, and school grade.

- 2) *Knowledge of Money Management (KMM)*: This measure was adapted from the *Ansell-Casey Life Skills Assessment (ACLSA)*. The ACLSA is a self-report measure covering nine domains of independent living skills, one of which is Housing and Money Management. The ACLSA was designed to be as free as possible from gender, ethnic, and cultural biases. It is appropriate for all youths regardless of living circumstances, whether with one parent, in foster care, in group homes or in other places (<http://www.caseylifeskills.org/pages/assess/whatis.htm>). The most recent ACLSA (4.0, 2005) includes separate versions for different age ranges. We will use Youth Level IV, considered appropriate for ages 16 years and older.

Casey Family Programs has spent nearly 11 years collecting psychometric information on the ACLSA. Since fall 2000, over 350,000 ACLSAs have been completed online. The results of Casey's extensive analyses will be released online later this year. Test-retest coefficients over a 3-week period are in the .80 - .90 range; internal (alpha) coefficients are extremely high, in the .93 - .96 range. Casey has established face and construct validity for the ACLSA, and confirmatory factor analyses "strongly confirm that the domains of the ACLSA are very, very robust (R. Downs, personal communication, March 31, 2006).

The ACLSA is organized into two sections: Knowledge and Behavior Items, and Performance Items. Of the 29 items on Housing and Money Management from the Knowledge and Behavior Items, 9 items were germane to the content of the curriculum developed in Phase I. Another two items on money management from the Performance Items also applied to the content of our curriculum. We adapted the skills addressed in the 11 items from the ACLSA we culled to a multiple-choice true/false format. In addition, we developed an additional pool of 50 items, using the same formats, based on content in our Phase I curriculum that was not covered in the ACLSA. The research team reviewed all items from the pool and eliminated ones based on their relevance, accuracy, and clarity. A total of 31 items withstood the review. Following a pilot study examining ceiling and floor effects of respondents, we honed the total number of items to 25.

- 3) *Attitudes and Beliefs about Money (ABAM)*: This measure, developed in-house, consisted of 20 statements about attitudes relating to budgeting and money management. Youth were asked to agree or disagree with statements using a 5-point Likert-type scale (where 1 = *totally disagree* and 5 = *totally agree*). Statements were framed as either positive (i.e., thoughtful, constructive, facilitative) or negative (i.e., impulsive, counter-productive) attitudes. Items included both general attitudes about money and specific items tied to the curriculum content on budgeting. Scores were the mean rating of all items. Higher scores reflected more positive attitudes and beliefs about money.
- 4) *Money Skills Confidence (MSC)*: This measure, developed in-house, consisted of 11 statements relating to youths' confidence in using money management skills. Youth were asked to agree or disagree with statements using a 5-point Likert-type scale (where 1 = *totally like me* and 5 = *totally not like me*). Scores were the mean rating of all items. Lower scores reflected more positive attitudes and beliefs about money.

- 5) *User Satisfaction*

This seven-item questionnaire, developed in-house, elicited feedback about the course from study participants. Participants rated various aspects of the program's content and format, from

1 (*did not like it at all*) to 10 (*liked it a lot*). One item asked participants to give the program an overall rating, from 1 (*worst*) to 10 (*best*).

Hypotheses

The following hypotheses were tested:

1. Both the MSC and the newly developed ABAM measure will demonstrate satisfactory (>.70) test-retest reliability coefficients.
2. Both the MSC and the newly developed ABAM measure will demonstrate satisfactory (>.70) internal consistency.
3. Controlling for pretest differences, we anticipate a main effect of group; that is, the treatment group will outperform the no-treatment group on the MSC, ABAM, and KMM measures.

Results

An .05 alpha level was used to determine significance in all statistical tests.

Preliminary Analyses

Means and standard deviations for all measures can be found in Table 3 and Table 4 (see Appendix B) contains correlations between measures. Independent samples t-tests and/or chi-square analyses on all demographic information from the Background Information questionnaire were conducted to detect any differences between the intervention and control groups. No significant differences were found between the two groups.

Reliability and Stability of Measures

The internal consistency of the MSC and the ABAM were examined using Cronbach's Coefficient Alpha. A coefficient of .88 was obtained for the MSC, indicating high internal consistency. The internal consistency of the ABAM was also satisfactory ($\alpha = .84$).

Stability of the measures over a one-week period were obtained. Test-retest reliability for the MSC was .58, and for the KMM was .64. Test-retest reliability for the ABAM was satisfactory, with a coefficient of .74.

Assumptions of ANCOVA

Our study used a pre-test-posttest design with a control group. Because we also used random assignment to groups, this experimental design was able to adequately control for all main threats to internal validity (Shadish, Cook, & Campbell, 2002) and allow for more powerful statistical analysis through the use of a covariate. Given the power of our experimental design, we were able to test our hypotheses using a between subjects analysis of covariance (ANCOVA) for each of the three dependent variables. Three separate ANCOVA's were run instead of a MANCOVA due to the lack of or low correlations between dependent variables.

In this design, group served as the independent variable with two levels: intervention and control. Quantitative pre-test scores on the MSC, ABAM, and KMM scales were used as the covariates and posttest scores on these same measures respectively were used as the dependent variables.

Given our choice of experimental design, many of the theoretical assumptions of ANCOVA were met; primarily that we demonstrated an adequate control of sources of extraneous variability. However, before proceeding, we also needed to evaluate statistical assumptions of this procedure: (a) univariate normality; (b) homogeneity of variance; (c) reliable covariate; and (d) homogeneity of regression slopes.

Visual analysis of histograms and interpretation of the Kolmogorov-Smirnov (K-S) test were

used to test the assumption of normality. The MSC scores at posttest for the treatment group, $D(42) = .21$, $p < .05$, and the ABAM scores at posttest for the treatment group, $D(42) = .13$, $p < .05$ were both significantly non-normal. As ANCOVA's are robust to violations of normality, the analysis was run. Due to the potential decreased power, however, additional nonparametric tests may be run.

Results of Levene's tests were not significant; indicating the assumption of homogeneity of variance for each model was met.

Two methods were used to assess the reliability of the covariates, tests-retest with a Pearson product-moment correlation and internal consistency using Cronbach's Coefficient Alpha. The following results were found: (1) For the MSC, high internal consistency ($\alpha = .88$) and low test-retest reliability ($r = .58$) was found; (2) For the ABAM, satisfactory internal consistency ($\alpha = .84$) and test-retest reliability ($r = .74$) were found; (3) for the KMM scale, moderate test-retest reliability ($r = .64$) was found. Based upon Salvia & Ysseldyke's (2004) criteria of .60 or above for reliability coefficients when making group research decisions, covariates were found to be reliable.

To test the assumption of homogeneity of regression slopes the ANCOVA was rerun using a customized model which examined the interaction term (fixed factor*covariate). No significant effects were found for any of the interaction terms, indicating that the assumption of homogeneity of regression slopes were met for each model.

Outcome Analysis

Results of the ANCOVA for the dependent variable KMM indicate that the covariate, KMM at pre-test, was significantly related to KMM at posttest, $F(1, 85) = 36.81$, $p = .000$. There was also a significant effect of group on levels of KMM at posttest, $F(1, 85) = 57.90$, $p = .000$, $\eta^2 = .41$. Results indicated that scores were, on average, better for those students who had participated in the intervention (see Appendix B, Table 3 for mean scores).

Results of the ANCOVA for the dependent variable MSC indicate that the covariate, MSC at pre-test, was significantly related to MSC at posttest, $F(1, 82) = 23.94$, $p = .000$. There was also a significant effect of group on MSC at posttest, $F(1, 82) = 7.62$, $p = .007$, $\eta^2 = .09$. Results indicated that scores were, on average, better for those students who had participated in the intervention (see Appendix B, Table 3 for mean scores).

Results of the ANCOVA for the dependent variable ABAM indicate that the covariate, ABAM, was significantly related to ABAM at posttest, $F(1, 85) = 51.33$, $p = .000$. Results indicated comparably small gains for both groups from pre to post-test. There was no significant effect of group on ABAM at posttest, $F(1, 85) = 2.89$, $p = .093$.

Additional Analysis

A Kruskal-Wallis test for the ABAM dependent variable was run, due to the violation of the normality assumption and the subsequent potential for decreased power of the ANCOVA model. Results indicate that there was no significant effect of group on levels of ABAM at posttest, $H(1) = 1.70$, $p = .19$.

User Satisfaction

As part of the posttest assessment, participants in the study's treatment group completed a 7-item user satisfaction questionnaire. On the first 5 questions, respondents were asked to circle the number from 1 (*not at all*) to 10 (*a lot*) that best described their view of the course. Questions were worded in a positive direction, so higher scores indicated greater satisfaction with the course. Of these 5 items, the one that received the highest mean rating (9.55) was, "Would this course be useful to other youth?" Receiving the next highest ratings were the

questions, “Was this course easy to understand?” and “Did the interactives help you understand the material?” They received mean ratings of 8.98 and 8.95, respectively. The question, “Did you learn something new?” received a mean rating of 8.60. Treatment group participants gave their lowest mean rating (7.48) to the question, “Were you interested in the characters’ stories?”

A sixth item on the user satisfaction questionnaire asked, “Overall, how would you rate the program?” Respondents indicated their answer on a 10-point scale, where 1 (*un-cool*) was the lowest score and 10 (*cool*) was the highest score. The mean rating for this item was 8.55.

We also constructed a satisfaction scale, composed of the first 6 items on the satisfaction questionnaire. Scores on this scale ranged from a low of 5.50 to a high of 10.00, with a mean score of 8.68, which we consider a seal of approval for the course from the study sample of Job Corps youth. (See Appendix B, Table 5, for complete results on the satisfaction items and scale.)

Finally, the satisfaction questionnaire contained an open-ended item, giving treatment group participants an opportunity to write anything else they wanted to about the program. Of the 42 treatment group participants who completed the user satisfaction questionnaire, 26 elected to respond to this item. By far, most of the comments were positive; only three were critical of the program.

Discussion

In Phase I we successfully produced *Money Medical: Healthy Money Management*, an interactive multimedia training component on managing money for youth. The component constitutes the foundational instructional portion of a comprehensive program that will include a serious game on Vstreet.com, which will simulate money management demands and resources for youth who are preparing to transition to independent living. In Phase I viewers assessed their preparedness on budgeting, learned about their own scripts (attitudes and beliefs) for managing money, and built a set of core skills on how to budget. These skills included: how to track expenses; differentiating needs and wants; understanding and using cycles and categories; transferring, assessing, and customizing information to meet individual needs and wants; as well as understanding the basics of paychecks, borrowing, credit cards, banking and credit reports, and loans.

The approach used a sophisticated blend of story animation, text and graphic overlays, interactive exercises, and supplemental printouts to deliver the instruction. Producing the media for the content, exercises, and handouts involved an extensive process of input and review among project team members. All anticipated production milestones were successfully achieved in Phase I. We produced a complete formalized curriculum that will be published on Vstreet.com, in both online and CD versions. We designed, programmed, performance-tested, and launched all online activities for the program on CD and on Vstreet.com. The content and look of the course were fully consistent with the quality of programs already available on the site.

Findings in the Phase I feasibility study were very encouraging. Results showed that the interactive multimedia presentation produced significant gains in youths’ knowledge and confidence in money management skills. While youth may easily feel a misplaced sense of self-confidence in managing their money, the increase in confidence we found was anchored by corresponding gains in knowledge, which indicated a credible and pragmatic shift in the acquisition of a life skill. This was especially impressive given the brief and self-regulating nature of the intervention. These significant changes, however, came ahead of attitudes about managing money, which only showed slight increases and which were comparable to the control group. The general attitudes tapped by our measure were more resistant to change and will likely require youth to experience the full scope of learning how to subsist on Vstreet over a

period of one or two monthly cycles.

The stability of the measures was less than ideal, however the tests were run on just the control group, as the intervention would be expected to interfere with the stability of the measure (i.e. you would expect changes at posttest for the intervention group). Thus the sample size was reduced. This problem should be corrected in Phase II with a larger sample size and further pilot testing.

Overall, youth expressed very high satisfaction with the program. They were eager to recommend the program to their peers and felt that it made it easy to understand the material. This is not an inherently glitzy topic; nor are many of the concepts easy to understand or implement, especially for the youthful novice. We were very pleased, therefore, that the program seemed to be embraced by this group of at-risk youth and that it instilled a greater sense of confidence and actual knowledge about financial matters.

The coordination efforts with the Job Corps were very smooth. The program fit well with the Job Corps' instructional priorities and they were able to provide us with ample resources (space, technical) to implement the training.

In summary, we produced a complete unit of interactive multimedia instruction on managing money and evaluated it with a group of at-risk youth. The program was replete with instruction, story scenarios, exercises, and printable handouts. Youth using a CD version of the program acquired knowledge and confidence on money management and found it highly satisfying. In addition, we wrote a complete concept paper for developing the serious game component of the proposed program, which will deliver the interactive simulation environment for the game on Vsteet.

Appendix A – Phase I Measures

MONEY MEDICAL: HEALTHY MONEY MANAGEMENT

MY BACKGROUND

1. How old are you? (*fill in*): _____ years
2. Are you...
 - Male or Female
3. What is your ethnic background? (*check all that apply*):
 - Hispanic or Latino Not Hispanic or Latino Unknown
4. What is your racial background? (*check all that apply*):
 - White Black or African American
 - American Indian or Alaska Native Native Hawaiian or Other Pacific Islander
 - Asian Unknown
 - Other: _____
5. What is the highest level of school you have completed? (*check one*):
 - 9th grade
 - 10th grade
 - 11th grade
 - Taking GED
 - Finished high school or GED
 - In college

MONEY MEDICAL: HEALTHY MONEY MANAGEMENT

KNOWLEDGE

1. A temporary, but still a good strategy for paying an old loan is to get a new loan.
True.
False.
2. The best way to think about the value of money is that it's:
 - a. Based on what you and others agree that it's worth.
 - b. Based mostly on what you think it's worth.
 - c. Based mostly on what others think it's worth.
 - d. Determined in the world of business and finance.
3. In general, people who earn more money have valuable skills.
True.
False.
4. Someone who has low earning power can buy the same things as someone who has high earning power if:
 - a. They get lucky.
 - b. They work faster.
 - c. They work harder.
 - d. They work longer.
5. Which is true about borrowing money from a credit card to pay a debt:
 - a. You have to pay interest on the cash you borrow.
 - b. You have to pay big penalties if you missed a payment.
 - c. The interest rates on all your cards jump up if you miss a payment.
 - d. All of the above.
6. Using a certified consumer counseling service to solve your financial problems usually adds up to more debt.
True.
False.
7. A good way of knowing whether you are in denial about money problems is if:
 - a. You're short of cash a lot.
 - b. You ask for people's advice a lot.
 - c. Your friends are willing to lend you money.
 - d. All of the above.
8. Pay stubs from a payroll check generally include information about:
 - a. The money you earned in the previous pay period.
 - b. Sick leave.
 - c. Benefits.
 - d. All of the above.

9. The best way to know how you spend your money on a daily basis is to:
- Remember what you spent at the end of each day.
 - Make an educated guess at the end of each day.
 - Keep your receipts and write down your expenses on a sheet at the end of each day.
 - Take the total of your bank account last month and deduct the total from this month.
10. It's best to create a budget:
- After you shop.
 - Before you shop.
 - As you shop.
 - A or C.
11. When making a budget you should first analyze:
- What you spent money on the previous month.
 - What you want to buy.
 - What you think you can afford.
 - All of the above.
12. Developing a budget means figuring out:
- How much you need to pay bills.
 - How much you can invest.
 - How much you can save.
 - All of the above.
13. When budgeting, how much of your income is it best to set aside for paying rent?
- 10%
 - 25%
 - 35%
 - 50%
14. Which is NOT a step used to change poor money habits:
- Admit you have a problem.
 - Find out who caused your problem.
 - Learn money management skills.
 - Stick to your plan once you make it.
15. We end up buying things we don't really need when:
- Our emotions are high.
 - We develop certain habits.
 - We feel pressured.
 - All of the above.
16. The recommended length of time for a budget:
- Is one day at a time.
 - Is one week.
 - Is one month.
 - Varies according to individual needs.

17. When creating a budget you should:
- Look at the totals for each type of expense.
 - Never assign certain dates for paying bills.
 - Write it in ink to avoid making changes.
 - All of the above.
18. When making a budget, loan interests shouldn't be listed separately from loan payments because they belong together.
- True.
False.
19. Which is NOT an advantage of having a credit card:
- You don't need to carry cash.
 - You can buy things you don't really need.
 - You can borrow money.
 - You can repay money over a long time.
20. It's okay to borrow money if:
- You use it for getting your basic needs.
 - You're buying something that may not be for sale for very long.
 - You're using it to pay for college.
 - All of the above.
21. If an item you want to buy won't last as long as the time it takes to pay for it, you shouldn't borrow money to buy it.
- True.
False.
22. Interest is:
- What you and someone else agree it's worth.
 - A rate of exchange.
 - A penalty.
 - The price you pay for borrowing money.
23. It's best to choose a bank that:
- Is close to where you live.
 - Offers debit cards with overdraws.
 - Charges no more than \$2 for ATM transactions.
 - All of the above.
24. Credit reports are based on:
- Your family's income.
 - How well you pay your bills.
 - How much you earn.
 - All of the above.
25. Credit reports are usually free and easy to get.
- True.
False.

MONEY MEDICAL: HEALTHY MONEY MANAGEMENT

ATTITUDES

	Totally Agree			Totally Disagree	
1. I'm entitled to buy the things I want even if I can't afford them.....	1	2	3	4	5
2. When I have money I like to spend it before it disappears.....	1	2	3	4	5
3. Playing the lottery or getting lucky can be a good way of solving your money problems.....	1	2	3	4	5
4. Money problems mostly happen because of bad breaks.....	1	2	3	4	5
5. I resent it when friends give me advice about how I spend my money.....	1	2	3	4	5
6. I think it's important to let people know I have money.....	1	2	3	4	5
7. Once you've learned about the risks of credit cards, it's okay to get more of them.....	1	2	3	4	5
8. It's best not to talk to someone close to you about your money problems.....	1	2	3	4	5
9. I generally think that there's little I can really do to control my financial situation.....	1	2	3	4	5
10. If you don't have money it's because "the rich get richer and the poor get poorer".....	1	2	3	4	5
11. We're all pretty much locked into our parents' beliefs about money.....	1	2	3	4	5
12. It's almost impossible to change your beliefs about money.....	1	2	3	4	5
13. It's worth blowing your budget on fun things you really want.....	1	2	3	4	5
14. It's not worth taking out student loans because you're stuck with a huge bill.....	1	2	3	4	5
15. Managing my bank account is the bank's job, not mine.....	1	2	3	4	5
16. If you think you have a bad credit rating, it's better to keep a low profile.....	1	2	3	4	5
17. Making high income usually involves having to take advantage of others.....	1	2	3	4	5
18. I'll probably never be able to afford the things I want.....	1	2	3	4	5
19. Budgets are not that important.....	1	2	3	4	5
20. I don't really want to understand about investing.....	1	2	3	4	5

MONEY MEDICAL: HEALTHY MONEY MANAGEMENT

CONFIDENCE

	Totally Like Me			Totally Not Like Me	
1. I could spot the warning signs if I were getting into financial trouble.....	1	2	3	4	5
2. I know how to figure out when something is a good value for me	1	2	3	4	5
3. If I had a money problem, I would face it and know how to deal with it	1	2	3	4	5
4. I understand the pros and cons of credit cards and know how to use them responsibly.....	1	2	3	4	5
5. I know why a paycheck comes to a certain amount.....	1	2	3	4	5
6. I know how to keep track of my money.....	1	2	3	4	5
7. I know how to live within a budget.....	1	2	3	4	5
8. I know different ways I can change or control my spending habits.....	1	2	3	4	5
9. I know how to make my money grow.....	1	2	3	4	5
10. I know how to responsibly borrow money.....	1	2	3	4	5
11. I know how to choose the right bank for my needs.....	1	2	3	4	5

Appendix B – Phase I Tables

Table 1

Sample Demographics - Part 1

Item	Control Group		Intervention Group		Total Sample	
	%	<i>n</i>	%	<i>n</i>	%	<i>N</i>
Gender						
Male	77.8	35	69.8	30	73.9	65
Female	22.2	10	30.2	13	26.1	23
Ethnicity						
Hispanic or Latino	11.1	5	9.3	4	10.2	9
Not Hispanic or Latino	53.3	24	55.8	24	54.5	48
Hispanic and Not Hispanic	4.4	2	0.0	0	2.3	2
Unknown or not reported	31.1	14	34.9	15	33.0	29
Race						
White	66.7	30	67.4	29	67.0	59
Black or African American	8.9	4	7.0	3	8.0	7
American Indian/Alaska Native	6.7	3	4.7	2	5.7	5
Hawaiian/Other Pacific Islander	0.0	0	2.3	1	1.1	1
Asian	0.0	0	0.0	0	0.0	0
Other	0.0	0	2.3	1	1.1	1
More than one race	6.7	3	9.3	4	8.0	7
Unknown or not reported	11.1	5	7.0	3	9.1	8
Highest Level of School Completed						
9 th Grade	2.2	1	14.0	6	8.0	7
10 th Grade	6.7	3	9.3	4	8.0	7
11 th Grade	20.0	9	16.3	7	18.2	16
Taking GED	13.3	6	9.3	4	11.4	10
Finished High School or GED	57.8	26	51.2	22	54.5	48

Note. Group and total percentages are based on the valid number of cases for each variable. No significant difference was found between the two groups on any of these variables.

Table 2

Sample Demographics - Part 2

Item	Control Group (<i>n</i> =45)		Intervention Group (<i>n</i> =43)		Total Sample (<i>N</i> =88)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Age (in years)	18.71	2.13	19.26	2.31	18.98	2.22

Table 3

Mean Performance on All Measures, by Group and Pre/Post Status

Group	MSC			ABAM ^b			KMM ^c		
	M	SD	n	M	SD	N	M	SD	n
Intervention- Pre	*2.29	0.88	45	3.91	0.55	46	*0.52	0.11	46
Intervention- Post	1.75	0.89	43	4.09	0.67	43	0.67	0.13	43
Comparison- Pre	2.27	0.76	47	3.92	0.57	48	*0.55	0.12	48
Comparison- Post	2.17	0.91	44	3.90	0.71	45	0.51	0.13	45

Note. Unless otherwise noted, unadjusted means are reported throughout the table.

* Differences between pretest and posttest are significant at $p < .05$.

^a Scores on the MSC scale are reported as the average rating of five items on a scale from 1 (totally like me) to 5 (totally not like me) with lower scores indicating higher levels of confidence about money.

^b Scores on the ABAM scale are reported as the average rating of five items on a scale from 1 (*strongly disagree*) to 5 (*strongly agree*) with higher scores indicating more positive attitudes and beliefs about money.

^c Scores on the KMM scale are reported as the average rating of the 25 items. Youth were given a one if the response was answered correctly and zero if the item was answered incorrectly. A total mean score ranging from 0 to 1 was given to each participant.

Table 4

Correlations Between all Measures, at Pre- and Posttest

	KMM2	ABAM1	ABAM2	MSC1	MSC2
KMM1	.417** (88)	.414** (94)	.318** (88)	-.166 (92)	-.084 (87)
KMM2		.368** (88)	.441** (88)	-.066 (92)	-.247* (87)
ABAM1			.606** (88)	-.210* (92)	-.234* (87)
ABAM2				-.194 (86)	-.191 (87)
MSC1					.449** (85)

Note. Sample sizes are reported in parentheses.

* $p < .05$

** $p < .01$

Table 5

Means and Standard Deviations for Course Satisfaction Items and Scale – Treatment Group

Read each question and circle the number that best describes your view.

M *SD* *n*

(1 means “Not at all” and 10 means “A lot.”)

Course Satisfaction Item:			
Was this course easy to understand?	8.98	1.80	42
Did you learn something new?	8.60	2.06	42
Would this course be useful to other youth?	9.55	0.97	42
Were you interested in the characters’ stories?	7.48	2.39	42
Did the interactives help you understand the material?	8.95	1.34	42
Overall, how would you rate the program? <i>(1 means “Un-cool” and 10 means “Cool.”)</i>	8.55	1.73	42
Satisfaction Scale (mean of 6 items above)	8.68	1.12	42
