Reaching Low-Literacy Limited-Resource Audiences with an Online Financial Literacy Program

Karen P. Varcoe, PhD.
University of California, Riverside

Margaret Johns, M.S., R.D.
Kern County
University of California Cooperative Extension

Shirley S. Peterson, M.S., R.D.
San Luis Obispo County
University of California Cooperative Extension

Contact Author:

Name: Karen P. Varcoe, Ph.D.
Position: Consumer Economics Specialist
Institution: University of California, Riverside
Postal Address: 139 Highlander Hall, Bldg. C.
Riverside, CA 92521 USA
Telephone: 951-827-5241
FAX: 951-827-5607
Email: Karen.varcoe@ucr.edu

Abstract

Making Every Dollar Count (MEDC) is a bilingual financial education program directed at improving the financial capacity of limited-resource low-literacy audiences available as an online tutorial or in written format. MEDC provides families with the basics of smart money management and includes information on under-utilized income-targeted benefits such as the Earned Income Tax Credit (EITC) and use of food stamps. The online self-paced English/Spanish tutorial can be read or listened to at convenient times and locations and is complete with interactive activities for participants to use as they complete the lessons. MEDC was pilot-tested and data were collected on knowledge gain and retrospective behavior (N=140) in 2008. A follow-up evaluation of the on-going program was completed in 2011 (N=85). For both the pilot-test and the follow-up evaluation, the participants believed they had learned from the program and were taking actions suggested by programmatic content. Participants liked using the computer to learn independently and the incentives offered to encourage continued participation.

Reaching Low-Literacy Limited-Resource Audiences with an Online Financial Literacy Program

Financial educators are seeking methodologies that will effectively improve the financial capacity and financial decision making of limited-resource families. In 2006, the Financial Literacy and Education Commission stated that there is a "myriad of ongoing financial education efforts within the United States, targeting a wide variety of topics and audiences and employing various strategies to deliver financial education" (vi). A review by Campbell also illustrates the breadth of financial education research and programs available, but states "poorer and less educated households are more likely to make mistakes than wealthier and better educated households" (1590).

While there may be many financial education materials available, a report prepared for the Woodstock Institute stated that many of the materials available in low-income communities to teach financial education are of little use (Jacob, Hudson and Bush, 2000). They suggested that graphics and technology used on the computer could be successful at teaching financial education as these techniques had been used successfully with low-income populations in South Africa. They also suggested that multilingual formats were "crucial for this population." The importance of providing programs that successfully address the financial literacy needs of families, including limited-resource families, is outlined in an article by Hogarth (2002). "Well-informed, well-educated consumers should make better decisions for their families, increasing their economic security, and well-being" (16). A study of family management skills among low-income rural women supports this belief. Increased family management skills were associated with increased parental confidence; thus, future child behavior problems were decreased (Hanson, Varcoe, and Ontai, 2009). If parental confidence can be increased by teaching family management skills, this will indirectly increase the well-being of children.

Purpose

This paper will discuss a bilingual (English/Spanish) online financial education program, *Making Every Dollar Count* (MEDC), directed at improving the financial literacy of low-literacy limited-resource audiences. The purpose of this paper is to provide an overview of the online as well as written version of this financial education curriculum, provide data on the effectiveness of the financial management curriculum, and assess the usability of the program, both online and classroom versions, for use with low-literacy limited-resource audiences. As suggested by Fox, Bartholomae, and Lee, the content and mode of delivery were tested for effectiveness (2005).

Background

There are many advantages to using an online educational approach. This method of delivery allows students to be empowered to learn independently and even to teach one another (Kassop, 2003). Limited-resource audiences often have not been successful in the academic arena (Anderson, Zhan and Scott 2004, 174). Working online allows them the opportunity to proceed at their own pace and succeed outside the formal classroom setting. It also allows participation on "their schedule." They can attend a course at anytime, from anywhere (Coleman, 2008) and they can attend when they are fully awake in convenient time blocks as course materials are accessible 24 hours a day, 7 days a week.

For many limited-resource audiences, using the computer to learn may be a relatively new experience. This may be especially true for low-literacy audiences. As such, participating in MEDC may help teach them skills in using technology—skills that will be crucial to workers in the 21st century (Coleman 2008). Online learning also enables "student-centered" teaching approaches. Every student has their own way of

learning that works best for them. Some learn visually and others do better when they "learn by doing" (Coleman 2008). The materials need to be targeted and tailored to reach the audience. The MEDC materials are targeted to the low-literacy limited-resource audience and opportunities are provided within the program for the participants to learn visually, by listening, or to learn by doing—allowing them to make their own decisions. Lastly, there are no geographic barriers to online learning. Many limited-resource families may live in remote areas. As long as they can have access to the internet, they can participate in the program.

Theoretical Model

The underlying model for this program comes from the idea that increasing human capital will build the individual's capacity to improve well-being (Bryant and Zick, 2006). This theory postulates that having more human capital such as skills or information will produce higher utility in the household as these items can be transformed in some manner to provide benefit for the household. Thus, as the participants use the program, gain information, and increase their ability to use their resources wisely, they will be improving their human capital and their skill set. As limited-resource, low-literacy participants, they will be using the knowledge and abilities gained from their participation to improve their personal human capital and their ability to manage the household's resources wisely. Using their resources more wisely will translate into increased well-being.

Method

To ensure this program met the needs of the target audience, focus groups were held with participants of a welfare-to-work program that reached low-literacy, limited-resource audiences. As a result of the comments from the focus group, *Making Every Dollar Count* (MEDC) was developed. Requests from local libraries to have the program be stand-alone and online created the stimulus for adaptation of the program to an online version.

MEDC provides families with the basics of smart money management and helps provide them with the information they need to make good financial choices. The printed curriculum includes simple-to-use lessons with a leader's guide, PowerPoint visuals, activities, and handouts designed to help families and individuals take control of their daily finances. The online self-paced English/Spanish tutorial can be read or listened to at times and locations convenient for learners. The online version is complete with interactive activities for participants to use as they complete the lessons. There is no charge for access to the online version.

During the development process, a conscious effort was made to maintain a 6^{th} grade reading level or below to address the needs of low-literacy individuals. The eight lessons selected to be included in the program were based on the recommendations of the focus groups. The MEDC lessons include Setting Goals; Making Choices; Stretch Your Dollars with Personal and Community Resources; Budgeting Basics; Paying Bills on Time Saves Money; When You Can't Pay Cash; Saving Money on Food; and Food Advertising. An introductory video, designed to capture the interest of limited-resource audiences, introduces the curriculum and website. Within the section on Stretch Your Dollars with Personal and Community Resources, special attention is given to inclusion of information on income-targeted benefits such as the Earned Income Tax Credit (EITC) and use of food stamps since these benefits tend to be under-utilized (Anderson, Zhan and Scott 2004; Varcoe, Lees and Lopez 2006). Shockey (2002) found that six money management behaviors are significantly inter-related highlighting the importance of including goal setting, tracking spending, and other money management behaviors. Her findings suggest

that including money management behaviors will increase the potential for having an impact on financial behavior.

Program Implementation

This paper will report on program implementation in two phases—pilot-testing in 2008 to determine if the program was effective and a follow-up evaluation in 2011 to ensure the program was still meeting the needs of the clientele.

Pilot-testing: The eight lessons in the curriculum were tested with Food Stamp eligible individuals in both its printed format and its web-based format in five counties. The participants in each county were divided into three to six delivery groups depending on the language preference of individuals recruited. One-third of the groups used the printed curriculum in a classroom format. Lessons were taught once a week for eight weeks with time allowed for follow-up questions. Another one-third of the participants reviewed the lessons over the internet in a self-paced format. The last one-third of the participants received a combination of classroom instruction with online activities being incorporated into the class or used as independent study activities to reinforce the classroom learning. These lessons were taught over a ten-week period. Participants from all groups were asked to complete a follow-up survey when they had completed all the lessons.

A variety of incentives were provided to the participants to encourage completion of programmatic materials and the follow-up surveys. Incentives have been proven to be effective in encouraging program participation as well as reducing drop-out rates (Anderson, Zhan, and Scott 2004). The incentives provided by this program included payment calendars, reusable grocery bags with the MEDC logo, a slide calculator to show how incidental costs add up, fotonovelas on credit and budgeting, and a series of ten brochures on how to save money. Additionally, certificates of completion were provided for each lesson and some sites offered an overall certificate of completion for the entire program.

Findings for Pilot-testing: Matched pairs of data were analyzed from 140 participants (n = 67 in classroom instruction), (n = 36 in computer only instruction), and (n = 37 for combination of classroom and computer instruction). Nearly two-thirds (64%) of the participants were from 20 to 40 years of age with a mean age of 36. Eighty percent were female with 39% being Asian or Pacific Islander, 32% being Hispanic; and 27% being white (non-Hispanic). Only 5% of the sample had total household income per month of more than $2501. A third (33%) of the sample had total household income per month of less than $500, 40% had from $501 to $1500 total household income per month, and 22% had total household incomes per month from $1501 to $2500. When asked about Social Service assistance programs they were using at the beginning of their participation in the program, 39% were participating in the Women, Infants and Children (WIC/CSFP) nutrition support program and 54% received assistance from food stamps. No one had received the Earned Income Tax Credit (EITC).

The majority of the sample (57%) lived in a town or city from 10,000 to 50,000 in population with an additional 34% living in the central city or suburb of over 50,000. When asked if they had a computer, 55% of the entire sample indicated that they did have a computer and access to the internet. Not surprisingly, 94% of those in the computer only group had a computer, but only 83% of that group had access to the internet. For the classroom only group, only 36% had a computer yet 43% had access to the internet. Sixty-two percent of the combination class had a computer with 58% having access to the internet.

A pre-test was given at the beginning of the instruction with an identical post-test given after all the lessons had been taught. For the computer only group, an instructor met with the class at the beginning of their instruction and provided the post-test when they indicated they had completed all lessons on the computer. Fisher's Exact Test (Agresti and Finlay 1997) was used to determine if there had been significant change in the knowledge scores of the participants from pre- to post-test. There were no significant changes in scores for any of the lessons or any of the groups.

At the end of the pilot- program, a group of retrospective questions were asked each of the participants. (See Table 1.) The participants were asked to score their level of perceived knowledge before and after the program using a scale of 1 to 5 with 1 being low and 5 being high. The respondents were asked about setting personal goals, understanding values, knowing the difference between a need and a want, how to make choices, knowing personal skills and resources, knowing community resources, using resources to make your money go further, knowing easy ways to save money on food, knowing simple healthy meals to make at home, and understanding food ads. Statistical analysis was completed using the t-test. There was a significant perceived increase ($p<.001$) in the participants' knowledge from before the program to after the program for all items with one exception. For knowing community resources, the classroom group did not have a significant increase.

Participants at the end of the program were also asked a series of questions that reflected actions they had taken or planned to take because of MEDC. (See Table 2.) These questions included: Because of the Making Every Dollar Count Program have you: written a personal goal, used the choice-making steps with a decision you needed to make, identified community resources you can use if needed, checked to see if you are eligible for Earned Income Tax Credit, used one of the easy ways to save money on food, and determined if using a coupon is better than buying the store brand?

For all tasks and all groups, the majority of the participants indicated that they had either completed the specified task or planned to do so with at least a third of the participants having already taken the specified action. Over 50% of each of the groups had determined if using a coupon is better than buying the store brand. Of particular note are the responses to the questions regarding whether or not you are eligible for the EITC with 43% of the combination group, 39% of the classroom group, and 33% of the computer group having already checked to see if they are eligible. An additional 51% of the combination group, 34% of the classroom group and 33% of the computer group are planning to check on their eligibility.

The participants were also asked, "How much has the MEDC program been worth to you?" On a scale from 1 to 5 with 1 being "not worth my time" to 5 being "very much worth my time," 97% of the combination group rated the program as a 4 or 5; 95% of the classroom group rated the program as a 4 or 5; and 100% of the computer group rated the program as a 4 or 5. Those in the computer-only group indicated that they liked using the computer to learn. Three-fourths of the computer-only group said they liked using the computer with the remaining one-fourth saying they would have preferred to have classroom teaching only. Over a half (53%) of the computer-only group indicated they would have liked to also have classroom teaching to assist in the learning process while 56% felt they had learned as much using just the computer as they would have with classroom teaching. For the classroom-only group, 57% indicated they wanted classroom teaching to assist in learning the lessons and 45% indicated they would have liked to use the computer to learn. Over a third (35%) of the combination group preferred classroom

teaching only with 51% indicating they liked using the computer to learn. Fifty-seven percent indicated that they wanted classroom teaching in addition to the computer to assist in learning the lessons.

Follow-up Evaluation: The Making Every Dollar Count program is part of the ongoing Snap Ed (Cal Fresh in California) educational curricula in the state. To ensure that the program is continuing to be effective, follow-up evaluations are conducted. Data from a recent follow-up in Kern County, CA will be reported here (N=85). After completing the Making Every Dollar Count program, participants completed the same retrospective evaluation tools used in the pilot-test to assess perceived knowledge gains and behavior changes related to the education. While the online version of the program is being used throughout the state, all instruction for this assessment was in the classroom. The participants were 60% female, 60% Hispanic or Latino, 10% African American, 30% Caucasian, and 40% lived in rural areas (60% in urban areas). Forty percent of the group was currently receiving Snap Ed benefits.

A group of retrospective questions were asked each of the participants at the end of the instruction. (See Table 3.) The participants were asked to score their level of perceived knowledge before and after the program using a scale of 1 to 5 with 1 being low and 5 being high. Participants reported significant ($p<.05$ to $p<.001$) perceived increases in knowledge in all areas—setting personal goals, understanding values, knowing the difference between a need and a want, how to make choices, knowing personal skills and resources, knowing community resources, using resources to make your money go further, knowing easy ways to save money on food, knowing simple healthy meals to make at home, and understanding food ads (statistical analysis was completed using the t-test).

At the end of the program, participants were also asked a series of questions that reflected actions they had taken or planned to take because of MEDC. (See Table 4.) These questions included: Because of the Making Every Dollar Count Program have you: written a personal goal, used the choice-making steps with a decision you needed to make, identified community resources you can use if needed, checked to see if you are eligible for Earned Income Tax Credit, used one of the easy ways to save money on food, and determined if using a coupon is better than buying the store brand?

For all tasks, the majority of the participants indicated that they had either completed the specified task or planned to do so. Seventy-two percent had written a personal goal, 73% had used the choice-making steps to help with a decision they had to make, and 74% had identified community resources they could use if needed. Only 19% of participants had determined if using a coupon is better than buying the store brand while 76% plan to do this. Twenty percent had also used one of the easy ways to save on food with 64% who plan to do this. The responses to the questions regarding whether or not you are eligible for the EITC were interesting with 20% of the group, having already checked to see if they are eligible. An additional 50% are planning to check on their eligibility.

The participants were also asked, "How much has the MEDC program been worth to you?" On a scale from 1 to 5 with 1 being "not worth my time" to 5 being "very much worth my time," 94% rated the program as 4 or 5.

Conclusions

Can financial education be delivered online to limited-resource audiences and have a positive impact on financial behavior/literacy? The findings from this study indicate that it can be and that participants like using the computer to learn independently. Many have access to computers and the internet making the

use of the web to provide financial education a real possibility and a way to extend programming during a time of decreasing resources. These findings are similar to Haynes, Haynes, and Weinart (2011) who conducted a study of chronically ill rural women to see if computer technology could be effective in helping the women take control of their own well-being, including finances. They found that distance education may be a way to deliver education to willing adult learners.

The classroom setting still provides an important venue for teaching financial management. For some learners, the exchanges in the classroom setting help the learners validate their knowledge and skills and help them gain confidence in their financial abilities. This may be why more of the classroom group in the pilot-test had completed some of the tasks than the other groups—the classroom discussions encouraged them to take action. In the follow-up evaluation of classroom instruction, the results were equally good.

There were no significant increases in knowledge in the pilot test, which was a cause for concern. In reviewing the pre- and post-tests that were used for this sample, it is hypothesized that the questions were too simple and easy for them to "guess" the answers. It was ultimately decided to use only the retrospective for evaluations. This was based on research that indicates the retrospective evaluation helps to reduce the underestimation of program effects (Pratt, McGuigan and Katzev, 2000). Thus, the follow-up evaluation relied only on the results from the retrospective.

The participants in both the pilot test and the follow-up evaluation did perceive that they had increased their financial skills and either had or were planning to complete a number of recommended tasks. Of special note is the EITC where the majority of participants in both groups had either already checked to see if they were eligible for the EITC or were planning to do so. In some cases, the classes were taught around tax time (April 15) so the respondents were motivated to check immediately versus those not taught around tax time.

Overall, the participants in both the pilot and the follow-up evaluations believed that they learned from the program and were taking or planning to take actions suggested by the programmatic content. In comparing the mean scores for the classroom groups on the pilot test and the follow-up evaluation, it is interesting to note the similarity. The mean scores for perceived knowledge before and after are almost identical even though the follow-up was two years later with an entirely different group of participants. This should indicate that the program is effective and can be used with a variety of clientele groups. Additionally, both groups indicated that the program was very much worth their time. The incentives provided for the program were especially popular and were helpful to the program implementers in encouraging the completion of the program materials as well as the follow-up surveys. Using incentives helps to keep the participants in programs. Even if it is something as small as allowing the participants to print out a Certificate of Completion at the end of each lesson, it is helpful.

This study provides data useful to agencies working with low-literacy limited-resource audiences. The assessment of the pilot-test provides evidence that low-literacy limited-resource audiences can, are willing to, and in fact, like using the computer to learn financial information. Online education is an option for reaching this audience with financial education, indicating that the internet may be a viable alternative for reaching them with other information since many have access either at home or at public locations such as libraries and learning does occur. The follow-up evaluation, while only a measure of learning in the classroom, indicates that the materials are still relevant and are effective in providing financial education for limited-resource, low-literacy clientele.

References

Anderson, S. (2002) Ensuring the Stability of Welfare-to-Work Exits: the Importance of Recipient Knowledge about Work Incentives. *Social Work,* 47(April): 162-170.

Anderson, S.,Zhan, M. and Scott, J. (2004) Targeting Financial Management Training at Low-Income Audiences. *Journal of Consumer Affairs,* 38(Summer): 167-177.

Agresti, L. J. and Finlay, M. H. (1997) *Statistical Methods for the Social Sciences.* Upper Saddle River, NJ: Prentice-Hall, Inc.

Bryant, K. W. and Zick, C. D. (2006) Economic Organization of the Household. New York: Cambridge University Press.

Campbell, J.Y. (2006) Household Finance. *The Journal of Finance,* 61(August): 1553-1604.
Coleman, S. (2008) Why Do Students Like Online Learning?
http://www.worldwidelearn.com/education-articles/benefits-of-online-learning.htm.

Financial Literacy and Education Commission. (2006) Taking Ownership of the Future: The National Strategy for Financial Literacy. http://www.mymoney.gov/pdfs/ownership.pdf.

Fox, J., Bartholomae, S. J. and Lee, J. (2005) Building the Case for Financial Education. *Journal of Consumer Affairs,* 39(Summer): 195-211.

Hanson, H., Varcoe, K. P., and Ontai, L. (2010) Family Management Skills among Low-Income Rural Women: Implications for Behavioral Outcomes in Children. *Proceedings, Eastern Family Economics and Resource Management Association,* 10 pages.

Haynes, D. C., Haynes, G. W., and Weinert, C. (2011) Outcomes of On-line Education for Chronically Ill Rural Women. *Journal of Financial Counseling and Planning,* 22:3-17.

Hogarth, J. M.(2002) Financial Literacy and Family & Consumer Sciences. *Journal of Family and Consumer Sciences,* 94(January): 14-28.

Jacob, K., Hudson, S. and Bush M..(2000) Tools for Survival: An Analysis of Financial Literacy Programs for Lower-Income Families. Chicago: Woodstock Institute.

Kassop, M. (2003) Ten Ways Online Education Matches, or Surpasses, Face-to-Face Learning.
http://technologysource.org/artcile/ten_ways_online_education_matches_or_surpasses_fa...

Pratt, C. C., McGuigan, W.M., and Katzev, A.R. (2000). Measuring Program Outcomes: Using Retrospective Pretest Methodology. *American Journal of Evaluation, 21*(3), 341-349.

Shockey, S. S. (2002) Low-wealth Adults' Financial Literacy, Money Management Behaviors, and Associated Factors, Including Critical Thinking. Unpublished doctoral dissertation, The Ohio State University: AAT 3039524.

Varcoe, K. P., Lees, N., and Lopez, M.(2004). Rural Latino Families in California are Missing Earned Income Tax Benefits. *California Agriculture,* 58(1): 24-27.

TABLE 1
Results of Retrospective Evaluation of Selected Financial Knowledge Areas
Making Every Dollar Count – Evaluation
(N=140)

	Mean Score					
	Combo (*n* = 37)		Classroom (*n* = 67)		Computer (*n* = 36)	
Financial Knowledge Areas:	**Before**	**After**	**Before**	**After**	**Before**	**After**
Setting Personal Goal	2.6	4.1***	3.0	4.6***	2.6	4.0***
Understanding Values	3.0	4.3***	3.1	4.5***	2.7	4.4***
Knowing the Difference Between a Need & a Want	2.6	4.4***	3.2	4.7***	2.9	4.6***
How to Make Choice	2.5	4.5***	3.1	4.7***	2.7	4.6***
Knowing Personal Skill & Resources	2.6	4.4***	3.1	4.4***	2.8	4.3***
Knowing Community Resource	2.4	4.2***	3.8	4.6 ns	2.5	4.4***
Using Resources to Make Your Money Go Further	2.5	4.2***	3.0	4.6***	2.4	4.3***

Knowing Easy Ways to Save Money on Food	2.5	4.3***	3.1	4.7***	2.6	4.4***
Knowing simple Healthy Meals to Make at Home	2.7	4.5***	3.0	4.5***	2.4	4.4***
Understanding Food Ads	2.7	4.4***	2.9	4.5***	2.4	4.4***

**p<.05, **p<.01, ***p<.001.*

TABLE 2
Financial Behaviors Completed or Planned to Complete or a Result of Participation in MEDC (N=140)

		Combo (*n* = 37) %	All Classroom (*n* = 67) %	Computer (*n* = 36) %
Because of the Making Every Dollar Count Program have you:				
1. Written a personal goal?	Yes	36	66	36
	No	0	7	0
	Plan to	64	27	64
2. Use the choice-making steps with a decision you needed to make?	Yes	42	60	42
	No	3	3	0
	Plan to	55	37	58
3. Identified community resources you can use if needed?	Yes	47	57	44
	No	6	5	0
	Plan to	47	38	56

4. Checked to see if you are eligible for Earned Income Tax Credit?	Yes	43	38	33
	No	6	28	11
	Plan to	51	34	56
5. Used one of the easy ways to save on food?	Yes	50	48	40
	No	0	3	0
	Plan to	50	49	60
6. Determined if using a coupon is better than buying the store brand?	Yes	58	50	61
	No	0	7	3
	Plan to	42	43	36
How much has the Making Every Dollar Count program been worth to you?	1	0	0	0
	2	0	0	0
	3	22	5	0
	4	42	22	14
	5	56	73	86

TABLE 3
Results of Retrospective Evaluation of Selected Financial Knowledge Areas Making Every Dollar Count – Follow-Up Evaluation (N=85)

Financial Knowledge Areas	Mean Score (*n* = 85) Before	After
Setting Personal Goal	3.0	4.6***
Understanding Values	3.2	4.6***
Knowing the Difference Between a Need & a Want	3.2	4.6***
How to Make Choice	3.1	4.7*
Knowing Personal Skill & Resources	3.1	4.4***
Knowing Community Resource	2.7	4.5**
Using Resources to Make Your Money Go Further	2.8	4.5***
Knowing Easy Ways to Save Money on Food	2.9	4.7***
Knowing simple Healthy Meals to Make at Home	2.9	4.6***
Understanding Food Ads	2.8	4.6***

**p<.05, **p<.01, ***p<.001.*

TABLE 4
Financial Behaviors Completed or Planned to Complete or a Result of Participation in MEDC—Follow-up Evaluation
(N=85)

		(*n* = 85) %
Because of the Making Every Dollar Count Program have you:		
1. Written a personal goal?	Yes	71
	No	2
	Plan to	27
2. Use the choice-making steps with a decision you needed to make?	Yes	73
	No	8
	Plan to	19
3. Identified community resources you can use if needed?	Yes	74
	No	6
	Plan to	20
4. Checked to see if you are eligible for Earned Income Tax Credit?	Yes	30
	No	28
	Plan to	42
5. Used one of the easy ways to save on food?	Yes	23
	No	2
	Plan to	74
6. Determined if using a coupon is better than buying the store brand?	Yes	19
	No	5
	Plan to	76
How much has the Making Every Dollar Count program been worth to you?	1	0
	2	0
	3	6
	4	32
	5	62