Using Characters To Engage And Teach Novice Web Users: A Case Study

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ABSTRACT
Starpoint Solutions was contracted by a major North American bank to design, develop, and usability test a series of five Web-based, interactive lessons teaching low- to middle-income people the basics of money management and financial independence in a classroom setting. The target audience is expected to have little or no experience with the Web or computers. Each of the five lessons had a character guide associated with it. These guides provided personal commentary from their fictional financial situations and were often integrated into interactive games and exercises. Subjective findings agreed with previous research, which has shown that the use of characters in user interfaces can greatly enhance the user experience – especially with people who may lack confidence and a sense of control. These traits were observed in usability testing participants and are expected to be common among novice end users.

Keywords
Usability, usability testing, human factors, education, training, characters, novice users, Web, Internet

1. INTRODUCTION
Starpoint Solutions (formerly, TIS Worldwide) was contracted to conduct usability testing of Lessons One and Two of the My Money Matters Web site – a community outreach effort of a major North American bank. My Money Matters is a series of five Web-based, interactive lessons designed and developed by Starpoint Solutions to teach low- to middle-income people the basics of money management and financial independence in a classroom setting. It is expected that community centers, such as the Young Men's Christian Association (YMCA), will offer the class as part of their ongoing self-improvement programs.

Characters were integrated into the curriculum and content design as guides throughout the site. Each of the five lessons was associated with its own guide, and each guide had a financial situation with which the expected users could relate (i.e., repaying student loans or turning a hobby into a source of income). Figures 1 and 2 provide examples of the interface design and use of characters. The characters were not animated and "spoke" to users via dialogue bubbles, providing personal commentary from their lives, as seen in Figure 1 and the right side of Figure 2. Characters were also integrated into some of the games in the lessons; the left side of Figure 2 shows a balloon popping game that illustrates the differences between fixed and flexible expenses.

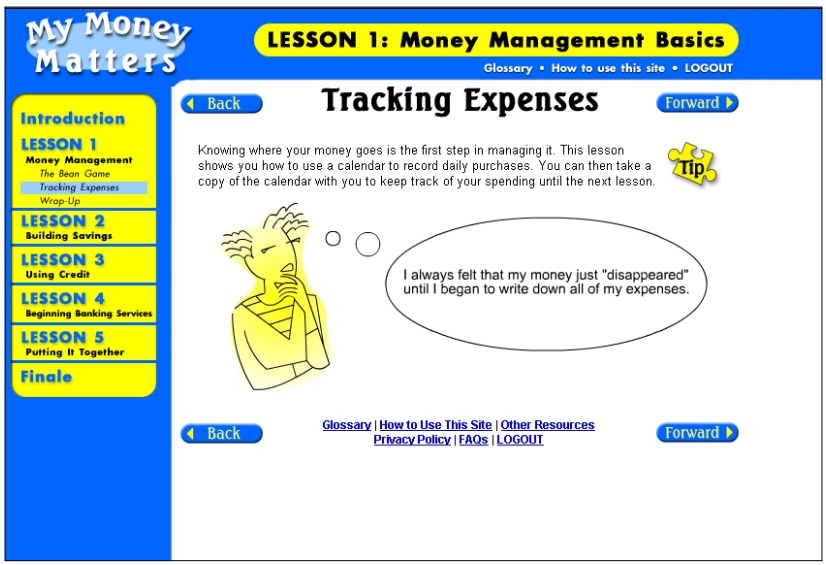

Figure 1. The overall layout of the site: navigation in the top and left blue areas; content in the white middle area.

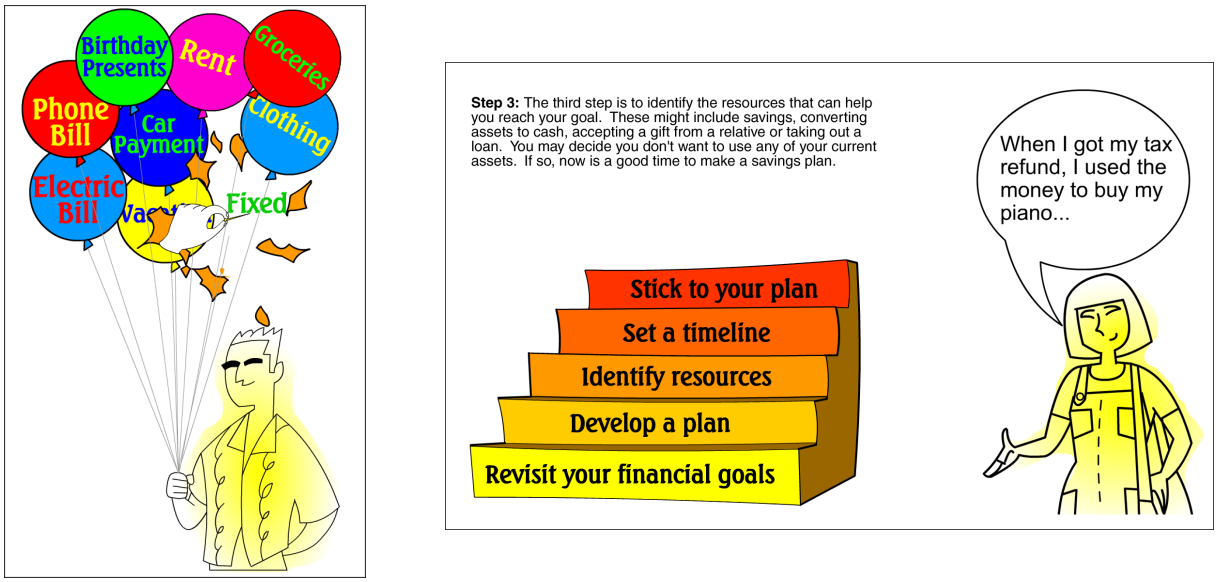

Figure 2. Examples of the use of characters. On the left, Bob Banks is integrated into an interactive game. On the right, Sally Spender provides personal comments from her financial situation.

2. RELATED LITERATURE

It was expected that the use of characters would positively affect the user experience. Previous research has shown that even simple line drawings "…are quite enough to activate a psychologically rich response" and that people often react to media characters "…and interact with them in exactly the same way they would with real people." [1] More specifically, Rickenberg and Reeves conducted a study of the effect of characters on users' responses to an interface. They found that "the addition of characters may make interactions more robust…" for users who lacked confidence in their ability to complete work on their own and who lacked a sense of control over their own success [2]. These traits were observed in usability testing participants and are expected to be common in the target audience of this site.

3. USABILITY TESTING

Usability testing was conducted on Lessons One and Two. Seven women participated in the test. All of them were part of a welfare-to-work program and were representative of the predicted user audience – namely, no-to-low computer skills and low- to middle-income. In addition, all participants were eager to learn more about managing their money.

Participants were tested in pairs, with an educational technology professor serving as the class instructor. This testing format was used, because it better represented the socially interactive environment of the classroom setting expected for the final rollout than traditional, one-on-one usability sessions. Participants were engaged by the characters from the moment they were introduced in Lesson One. Level of engagement was determined by moments when the participants smiled at, laughed at, or even talked to the guides. An unexpected finding was that some participants did indeed talk directly to the guides. For example, when the guide for Lesson Two, Sally Saver, was introduced, one participant said to her, "OK, Sally, let's see what you can do." Participants commented that they "really liked the characters guiding me through the site" and that meeting the characters "was cool."

4. CONCLUSIONS

Results from subjective responses of users and observations made during testing appear to agree with the research referenced earlier. Namely, many users interacted with characters in manners similar to interacting with real people. In addition, users were highly enthusiastic in their responses to open-ended questions in the post-test questionnaire, reporting that the site was extremely fun and made them want to learn. Perhaps, as Rickenberg and Reeves state in their paper, the use of characters in this educational site did indeed "… turn up the volume on social presence, which means it can accentuate the effects of everything presented" – ultimately leading to a more engaging, involving user interface. [2]

5. REFERENCES

[1] Reeves, B. & Nass, C. (1996). *The Media Equation: How People Treat Computers, Television, and New Media Like Real People and Places*. Stanford, CA: CSLI Publications.

[2] Rickenberg, R. & Reeves, B. (2000). The Effects of Animated Characters on Anxiety, Task Performance, and Evaluations of User Interfaces. *Proceedings of CHI 2000 – Conference on Human Factors in Computing Systems*. New York, NY: Association for Computing Machinery.

Personal Vitae
Andrea H. Berman

Andrea H. Berman is a Senior Human Factors Specialist with the Netsuasion Division of Starpoint Solutions, New York, New York, USA. Miss Berman focuses on interface usability, user assessments, and information architecture. She is responsible for conducting heuristic evaluations of Web-based interfaces as well as mapping out the global information layout and architecture of sites. Miss Berman also manages and performs user testing of client Web sites and periodically participates in the creative design process.

Prior to joining Starpoint Solutions, Miss Berman was a Human Factors Engineer under contract to the NASA Johnson Space Center in Houston, Texas, USA. She developed and conducted numerous usability evaluations of hardware and software for both the Space Shuttle and International Space Station programs. In 1996, Miss Berman and her Human Factors Engineering colleagues were awarded the prestigious NASA Group Achievement Award for their efforts in training the first Space Shuttle crew to dock with the Russian Space Station, Mir. Miss Berman's favorite NASA adventure was flying on the KC-135 "Vomit Comet" and experiencing weightlessness on multiple flights.

Miss Berman earned a Master of Science degree in Human Factors Engineering from Texas A&M University's Industrial Engineering department. She also holds a Bachelor of Science degree, *cum laude,* in Astrophysics from Tufts University. Miss Berman has completed continuing education courses in Graphic Design at the School of Visual Arts in New York, New York. She is a member of the Human Factors & Ergonomics Society, the Association for Computing Machinery's Special Interest Group on Computer-Human Interaction (ACM SIGCHI) and Alpha Pi Mu, the national Industrial Engineering Honor Society. She is also an active participant in the Space Transportation Association's Space Travel and Tourism Division. Miss Berman has authored over 15 publications in the fields of human factors engineering and usability and has made presentations at various conferences.

Miss Berman enjoys going to concerts and theatre, singing, traveling, reading, yoga, hiking, and anything to do with outer space.