Lessons from Prototyping a Microfinance Distance Learning Tool

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Introduction

Information and communication technologies (ICTs) have the potential to be a critical part of projects that seek to improve the lives of people living in developing countries. Here we describe our experience building a prototype of a distance learning tool for people learning to manage self-help microfinance groups in southern India. Microfinance consists of providing group members with small loans to allow them to create revenue-generating businesses that improve their standard of living. It is also one of the more sustainable approaches to poverty alleviation, as loan repayment rates are typically extremely high, which allow funds to be reused to assist more people. The goal of the distance learning tool is to allow more microfinance groups to be created and sustained, thereby increasing the number of people that have access to loans.

Our experience suggests that close collaboration with an intermediary group that can bridge the gap between the designers and the targeted population may be particularly important for the success of ICT projects for economic development.

Community

We collaborated with the Covenant Centre for Development (CCD), a Tamil Nadu, India based non-governmental organization. CCD supports over 500 microfinance self help groups (SHGs), each with 12-20 members. The education of members ranges from uneducated and illiterate to those that have completed middle school. Almost all solely speak Tamil (the local language), and almost none are familiar with computers.

These SHGs use a *flapbook* to manage the accounts. A flapbook is a single notebook that holds all of the accounts, transactions and summaries for one group. Currently a number of local field staff help to manage the groups. When a new group forms, an existing field staff member must either manage the new group's financial accounts, or train one of the new group members to manage the accounts. Both solutions are a burden on field staff members. In the interests of relieving this burden, and enabling training to be scaled up to allow microfinance groups to be created at a faster rate, we investigated creating a distance education tool to allow users to use a computer to learn how to manage the microfinance accounts.

Design process

The significant language and cultural differences between the target user population and ourselves, the outside designers, amplified the typical challenges present in any design process.

The first prototype idea was to take the flapbook and simply mimic it as much as possible in digital form, in order to make it easy to transfer the knowledge learned on a computer to using the physical flapbook. An early idea was to develop a tutorial system where the left half of the screen would present exercises that the user would try on the virtual flapbook on the right. However, a short visit to India and further discussion revealed that this approach was unlikely to succeed. Even a simple tutorial system of this type requires basic computer skills which the intended users were unlikely to have, and building in extra training to develop these skills would be a significant overhead.

Based on these findings, we next looked at the Tutored Video Instruction (TVI) work pioneered by Gibbons and colleagues in the 1970s [2]. Theirs and other later work [1] have found that students who learn by watching recorded lectures together in small groups perform equally well to students that learn by attending traditional lectures. In the TVI model, students can pause the recorded media to discuss questions about the material amongst themselves. This precedent is exciting because it suggests that when grouped into a small community, students can remotely learn a subject as well as through live lecture-style instruction.

Inspired by this work, our second prototype is centered around a simple webpage that allows users to select, pause and play video tutorials. This requires users to have a minimal familiarity with a mouse and be able to understand the intuitive video-concepts of "play" and "stop", but it does not require the users to be able to use the keyboard or have a more advanced familiarity with graphical user interfaces. Users that are illiterate can also use the content in the same manner. This means that illiterate members can get a much more thorough understanding of the system mechanisms, and indeed if they have a sufficient amount of numeric literacy, may even be able to manage a subset of the accounts.

Each tutorial is a video of a teacher explaining one section of the flapbook. An experienced CCD field staff member was chosen to be the teacher. Using local field staff members as instructors leverages their knowledge and experience with the CCD microfinance accounting system and the target users, along with their familiarity

with the local language and culture. The video interface was designed in Flash and user-initiated pauses during video play were automatically stored to a MySQL database. This feature was created because it allows for later review of which parts of the explanation triggered pauses (presumably either due to confusion or interest). This may be informative to the instructor for revising his or her explanation and potentially used later to introduce automatic pauses at time intervals that were frequently paused by other users, to encourage discussion by the viewers. Since small group discussion appears to be a critical component of the success of TVI models [1,2], features that encourage frequent discussion are likely to be beneficial.

We traveled to Nagapattinum in coastal Tamil Nadu to get feedback on the prototype. There we recorded an initial prototype video of an experienced staff member explaining the external loan section of the flapbook. We then got feedback from four user groups consisting respectively of: educated female CCD staff members, male farmer SHG members, female fisheries SHG members, and illiterate male farmer SHG members (these male farmers currently have a staff member write their accounts). Feedback was obtained directly from the first group (who spoke some English) and with the other threes groups, CCD staff members translated the user feedback. Users were encouraged to stop and pause the video at any point when one of them was confused, and to discuss the confusion within the group before continuing the video.

Based on the feedback of the first two groups we taped the same staff member giving another tutorial and this time focused the video on the teacher's entries into the flapbook (see figure 1) instead of on the teacher's face so that a learner could practice by trying the same exercise as that shown in the video on his/her own flapbook. All groups were interested and could see the potential benefit of using the system as a way to learn the basic outline of the flapbook system and (for the staff members) to reduce their training burden. The first two groups were concerned that illiterate members would not be able to learn from the system which is why we choose the last user group to consist only of illiterate members. Their feedback suggested that for illiterate members the tutorials would be confusing during the initial viewing, but by watching them repeatedly they could learn the flapbook system. Some users were concerned that the video could not anticipate and answer all the potential different learner questions. One potential solution to this would be to have local field staff answer learners' questions either via mobile phone or during their monthly group visits.

Reflections on the process

Though this is a small preliminary study, and care must be taken in interpreting the user feedback due to potential translation errors, we offer here a few thoughts on this project and process.

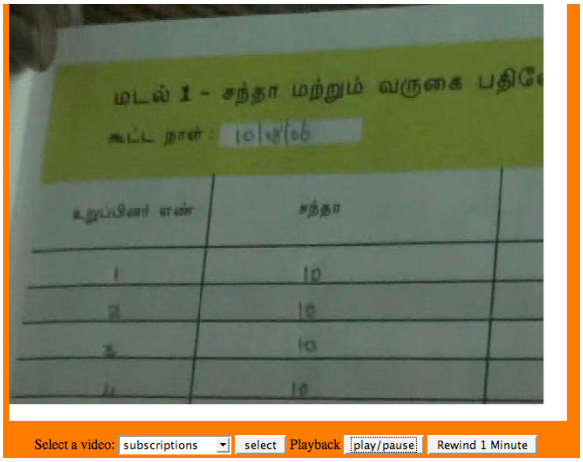

Figure 1. Screen shot of second prototype

The Role of the Intermediary

This project originally consisted of two primary interacting groups: us, the English-speaking ICT experts who were doing system design and the Tamil-speaking rural SHG members. Here, even having an informative dialogue between the two groups is challenging due to the significant cultural, educational, and language barriers separating the two groups. Having a common intermediary can greatly inform the design process and facilitate intergroup communication. In this project the local college-educated Indian CCD staff members (who typically spoke English in addition to Tamil) served as a critical intermediary for helping us to understand user needs, and, correspondingly, explain our intentions and the potential capabilities of the system to the user group. We believe that identifying and collaborating with such intermediaries may be an important aspect of designing for underserved users in the developing world.

User Involvement in Problem Specification

Though most participants in the user feedback groups seemed to think this system would be helpful, it is unlikely to be used in the immediate future. We originally anticipated a higher level of computer access in rural areas (due to projects like Mission 2007 [3]) than is yet present. In addition, the current microfinance organization growth rate is not yet high enough to outstrip the capabilities of the field officers to train and manage SHGs[1].

This relates to the issue of how to best identify the needs of users in developing countries. Often the initial system idea is produced outside the user population

[1] This is a cyclic problem, as microfinance SHGs can only be created at the rate at which it is possible to train people to manage the accounts of these new SHGs.

involved. Even if the targeted population is then involved during the design stage, this can result in the system being unused. Therefore, we echo the call by others for users to be heavily involved in specifying the problem, in order to ensure that designed systems address the current user community needs. The use of an intermediary group to facilitate interaction between users and ICT experts may be particularly important during this stage, to help explain the capabilities of ICT to users in order for them to know what is possible. Further work and discussion of techniques to facilitate dialogue between outside designers and the user population can only aid the sustainability and success of future economic development ICT projects.

References

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