Chapter 12
A Picture and a Thousand Words:
Visual Scaffolding for Mobile Communications in Developing Regions

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ABSTRACT

Mobile communication is a key enabler for economic, social and political change in developing regions of the world. The authors argue that engaging citizens in developing regions in information creation and information sharing leverages peoples' existing social networks to facilitate transmission of critical information, exchange of ideas, and distributed problem solving. All of these activities can support economic development. They describe Picture Talk, a mobile social computing application framework designed to facilitate local information sharing in regions with sparse Internet connectivity, low literacy

rates and having users with little prior experience with information technology. Picture Talk runs on today's internet-enabled smartphones as well as camera phones with multimedia messaging, now available in many of these regions.

INTRODUCTION

We are interested in designing applications that enable people at the base of the economic pyramid (BoP) to create, share, and discuss information as is commonly done on the World-Wide Web today, but through mobile technologies. The BoP includes over one billion people with little access to computer technology often living on less than $1US per day in some of the least developed countries in sub-Saharan Africa, South/Central America and the Indian Sub-continent, as well as several other parts of Asia. As others have recognized (Prahalad, 2004; Kumar et al, 2008), enabling connections among a wide spectrum of people can lead to the empowerment of the disenfranchised and enable people who have been largely excluded from modern technology and economic opportunity to express their entrepreneurial tendencies. This could result, for example, in the creation of broader markets for local goods and services. The global reach of mobileM communication networks offers, for the first time, a broad platform for delivering applications and software services that can realize this potential.

We have three design goals for the mobile applications we build. First, we want these applications to be usable by even the most disadvantaged users, many of whom are illiterate Second, we want to enable these users to document local needs, problems, and issues by creating, storing, and sharing digital artifacts (e.g., maps, photos, graphics, radio news reports, music, games, TV segments, informal news). Third, we want to enable these users to engage in conversation about these digital artifacts to offer solutions, share perspectives, or to engage in purely social exchanges.

Our initial implementation toward these goals is Picture Talk, a mobile social computing application framework that supports three major features: first, mobile phone users can start an inclusive discussion forum with other mobile phone users by asynchronously sharing short recordings of their voice over a wireless network; second, they can supplement and provide structure for the unfolding conversation by adding pictures; and third, they can discover and participate in discussions shared by other users, reaping the rewards of prior users' ideas, comments, and solutions. These features could enable Picture Talk to become a powerful tool to support existing social behavior and social connections between users (Danis et al., 2009).

This article first provides some background on some of the obstacles that BoP communities face in trying to access information technology, then introduces the problem of supporting information creation and dissemination in this environment, and then describes mobile social computing as a potential solution, including the Picture Talk application framework we have developed. We conclude with some future directions and conclusions.

BACKGROUND

BoP populations face a number of obstacles in becoming part of the global online community. In the economically developed world, access to information technology has been largely through Internet-connected computers. An important benefit of access to the Internet has been the potential for contact with the worldwide community of users. Through online communities, Internet users engage in discussions on topics of common interest, write comments that serve as a means of self-expression, and solve each others' problems. We argue here that through mobile

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