

# Users' Needs for Social Tagging and Sharing on Mobile Contacts

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## ABSTRACT

In this paper we describe our research toward improving the current mobile contacts applications, which we found to lack important features that are essential to a fully satisfactory user experience. We identify the needs for a better user experience for organizing and searching, as well as looking for information from one's social network. We present the results of a user study that identified the problems with the current mobile contacts applications and propose tagging contacts and social network information sharing as the mechanism for improving their usability and usefulness.

## Categories and Subject Descriptors

H.5.2 [User Interfaces]: User-Centered Design

## General Terms

Experimentation, Design, Human Factors

## Keywords

Mobile contacts application design, user study, mobile tagging, mobile recommendation system

## 1. INTRODUCTION

The increasing popularity of mobile devices with WiFi capability invites active research on how to design the future mobile contacts application, a problem which has received little attention so far. Among previous research, the work done by Jung, et al. [2] serves as a good starting point. They proposed a novel contacts application to satisfy users' needs for efficiency of access, customization and personalization, assistance to social management, flexibility in organization, and accessing contacts information beyond their own. Although the research and prototype had some initial success, they designed most of the features without examining in detail their usability; hence the desirable effects of efficient access, flexible organization, and customization and personalization were not achieved quite well. In this paper, we describe our user study in which we discovered the users' dissatisfaction with managing contacts and looking for information beyond their own contacts such as information about business services. We propose tagging phone numbers or people and sharing tags within one's social network as a solution to these problems. We believe the combination of tagging and social networking is a novel idea for potential improvements to the mobile contacts application, and we give an example of such application by explaining how the system will solve some of the problems (discussed in 2.2.2) with finding information about business services.

## 2. USER STUDY

We designed a user survey to find out (1) the usages and problems of storing, searching and organizing contacts in phone book, and (2) the process of finding information about local business services. The survey included multiple choice questions as well as open-ended questions that allow people to specify improvements they want over the features and functionalities of their phone book. The survey was conducted for a one-week period in Korea via an online form. Eighty-seven people (42 males and 45 females), ages ranged in between 15 and 50 participated in the survey. 48 were students, 25 were homemakers, and 14 were employed full-time. Forty participants have children and 47 do not. The questionnaire is located at this web page<sup>1</sup>.

### 2.1 Storing, organizing and searching

The survey asked about how people organize their mobile contact list. 46 people responded that they organize the contacts using groups, and 42 people do not. However, most people responded that using groups to categorize the phone book is troublesome. 55 people didn't know which group should they put a number into, 12 couldn't find a representative name for a group and 11 couldn't search for contacts using group names. The problems are expressed further in the open-ended questions where 5 users want the ability to put a contact into several different groups, 4 want to have hierarchical groups, and 4 want to be able to search using group names. We can tell from these answers that people use groups as a way to describe multiple pieces of information of a contact to help them recall and retrieve the contact in future communication. Inherently, this extra information is unique for each contact, and users often associate several pieces of information with a contact, hence making it difficult for them to choose representative group names or decide which group a contact belongs to.

### 2.2 Finding information about business services

Whittaker, et al. [6] showed that important contacts for long-term interaction can be identified by either longevity, frequency, or recency of communication, so infrequent but long-lasting contacts are important to users. However, those are not considered to be important in existing mobile phonebook applications and research. Common household and personal services such as childcare, house cleaning, repair and maintenance, education, movies, food, healthcare, transportation, utilities, and laundry and dry cleaning

are examples of these infrequent but long-lasting contacts. Our study result shows that, on average, 47.5 percent of the participants whose age ranged from 31 to 50 call these services at least once per month, and 75.4 percent of them call at least once every three months. This result demonstrates that support for maintaining the contact information of these services is important in the design of the mobile phone book.

To discover problems that users might have when they look for information of these services, we classified the information seeking process into two types: one for the repeated calls to the services, and the other for first-time uses of the services. The result revealed that the Web is the primary source of information for both types, but the secondary sources of information for the two processes are different. For repeated uses of the services, the second most used source is their phone book, whereas for the new services, it is the users' acquaintances. More than 20 percent of the participants responded that they seek information from their family members, friends, and colleagues when they first need childcare, cleaning, food, healthcare and laundry services.

Our survey revealed problems with the current mobile phones for all three major ways of information seeking: searching the Web, using the phonebook on the mobile phone, and asking the user's acquaintances. First, searching the Web using a mobile phone presents many challenges. Besides the widely known issues including small screen size and the inadequately designed Web pages for mobile devices, a major concern is that many of the services mentioned above are small and local, so there is not much information about them on the Web. Second, users often have trouble when looking for a service number using their mobile phone book. Out of 87 participants, 61 did not remember whether they stored the service contact information in their mobile phonebook, 40 did not remember the name under which they stored the information, and 21 had to browse through their entire contact list to find a number. Third, asking acquaintances about some business services also caused problems for users. 45 out of 87 participants specified that they did not know whom to call for the information, and 60 percent of the recipients did not have information for the callers. This clearly suggests the need for a system that can help users to find the right person to obtain a specific piece of information.

### 2.3 Tags and Social Networks

In the previous section, we described many problems users encounter in organizing and searching for contact information using existing mobile phone book applications. In this section, we propose a solution for solving them.

Our survey reveals that users attempt various solutions on their own. 7 participants used memo or note for storing the extra information, and several others include the information in the name entry of a contact. Both suggest the need for easy and efficient storage and retrieval of extra information related to a contact. Yet, the contact name has been the only searchable piece of information for a contact; and both memo and note are not available for searching in mobile phone book applications. The solution attempted by the users is indeed related to what we believe to be an inherent solution to this problem – adding tags for each contact. Tags are useful for retrieval, making it easier to find resources, and the act of tagging a resource is similar to

bookmarking a resource for oneself [1]. Resources can be categorized by several tags, rather than one directory or a single branch of a hierarchy [3]. If users are able to associate multiple tags with any contact, they can group the contacts into hierarchical groups and multiple groups, and also use multiple tags to search for a contact rather than having to remember a particular service name or browse the entire contact list.

Even though tagging can solve some of the issues, it does not address the problem that users have when they need information for a new service. Our survey results show that users often turn to their acquaintances for information, and they need help in finding the right person who has the information needed. We propose combining tagging and sharing of information with the people in one's mobile contacts, and potentially, people from other social networks such as Facebook and Twitter. Many tags submitted by multiple users taken together can result in a complex network of inter-related users, resources, and tags [4]. This network can be used to retrieve and return information, as well as generate recommendations for new services.

### 3. CONCLUSION AND CURRENT WORK

We discussed problems in the current mobile phone book application and proposed social tagging and sharing as a solution. We have submitted a report of the preliminary user evaluation of a paper prototype in which we discuss important factors including user interface elements, tag input suggestion, and business services recommendation based on the user's social network. The preliminary study showed positive acceptance of the system from users [5]. Currently we are developing the application on Android platform, and we expect to perform an extensive user study when we finish.

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