

Memory-Sharing Support Tool for Improving Local Interaction

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Abstract. The goal of this paper is to improve communication between local residents. To achieve this goal, we propose a memory-sharing system for use by local residents. This system focuses on memories relating to the local area, because providing a common subject to talk about is important for the promotion of communication between people who are not acquaintances. In our system, the residents input their memories into a digital map and talk about the memories. The results of an evaluation experiment show that while awareness of connections with neighbors had been low, after using the system this awareness increased, and the residents were beginning to feel more interested in each other.

Keywords: Memory-sharing system, local communities, local area memories.

1 Introduction

This paper proposes a memory-sharing system to improve communication with users' neighbors and promote interaction between them. Establishing a close relationship with neighbors is one of the important aspects of disaster prevention, crime prevention, childcare and so on. Nevertheless, recently, there has been a reduction in intimacy in relationships with neighbors in Japan. Key reasons for this include the increase of residents who move to multi-dwelling housing in urban areas from other areas, changes in the structure of the nuclear family such as single-parent families, and large retail stores, which have caused community-based local stores to decline. According to the Heisei 19 Edition White Paper on the National Lifestyle presented by the Cabinet Office of Japan [1], it was shown that for a question about desired level of association with neighbors, the percentage of people who answered that they "want to be able talk about anything and help each other" dropped to 19.6% in 2003 from 34.5% in 1973, and the percentage of people who answered that they "want only to exchange greetings" increased to 25.2% from 15.1%. These results indicate that Japanese people now tend to prefer a distant relationship with their neighbors, in which they know only what kinds of people live nearby, rather than having a close relationship in which they and their neighbors know about each other's private lives. This trend leads to low interaction between neighbors, a situation which cannot be said to be positive.

One example that indicates the importance of association with neighbors can be seen in the comments of earthquake victims. In a questionnaire survey conducted on 240 people who suffered the Great East Japan Earthquake, 53.8% answered that they had come to prioritize communication with their neighbors after the earthquake [2]. In addition, in a Web questionnaire survey on changes in attitudes after the earthquake, 41% of 2,439 respondents said that they had a stronger awareness of communication and connections with their neighbors [3]. In this way, the reduction of intimacy in relationships with neighbors has a negative impact on community activities such as disaster and crime prevention and childcare. Therefore, it is important to understand the impact of interaction with neighbors and improve poor attitudes towards it, before problems occur which require the help and support of neighbors.

In this paper, we propose a memory-sharing system that activates communication between local residents on a regular basis, with the aim of improving community involvement.

2 Related Work

2.1 Jimoto-gaku

Jimoto-gaku, meaning “local research”, is a Japanese field of research that aims to improve regional exchange [4]. Jimoto-gaku provides an ideal foundation in which anyone can participate by surveying and sharing common problems of the local area. However, there are some issues within jimoto-gaku, when we consider the increase in salaried workers and the tendency to dislike interaction with neighbors, which are factors for the reduction in relationships with neighbors. The first issue is that practicing jimoto-gaku requires forcing interaction between neighbors, to some extent. In many jimoto-gaku initiatives, local residents start by walking around the local area, learning about it, and searching for problems that exist in the local area. Connections between residents are deepened by discovering new appeal in their local area through fieldwork and sharing the same time and space with others. However, it is necessary for those that practice such activities to have a high awareness of problems in their neighborhoods; for residents with low awareness, such actions may be perceived as annoying. The second issue is that jimoto-gaku involves high costs. It is necessary to provide a place where residents can discuss common topics together anytime, anywhere when practicing jimoto-gaku. However, it is difficult to provide such a place available in both daytime and evenings, because local areas often contain a mix of residents with various occupations and consequently different lifestyle rhythms.

In this paper, we consider the provision of an arena for communication in an environment similar to social media on the Web, in which users can participate freely without being restricted by physical location. In addition to this, our goal is to realize a place where residents can freely comment upon ideas whenever they wish and share their comments with other local residents.

2.2 Collaborative Remembering

It is possible, for example, for elderly persons to interact with each other through gateball (a Japanese adaptation of croquet), and families with children can interact with other parents of similar age. Thus, persons of the same age and circumstances can interact naturally, but persons of different ages can find it difficult to interact with each other. Persons of various ages naturally live in a local area, so they need to interact regardless of age or gender. Koichi Sato states that inserting one's own experience into a conversation can raise the credibility of the conversation and enrich communication [5]. In this paper, by focusing on memories of self-experience, we use memories about the local area as a starting point for residents to interact with each other, without being conscious of differences in their ages, hobbies, etc. By recalling and sharing memories about the local area that anyone who lives in the area would possess, residents can communicate with each other by talking about things that happened a long time ago in the local area, or the differences between the present time and the past, etc.

3 System Construction

3.1 System Flow

This system was constructed as an iPhone application, because we assume that many people are familiar with using smartphones regularly, and smartphones can be used at any time and in any place, regardless of age or gender. In the application, users can input and share local memories on a digital map. The flow of the system is as follows (Fig. 1).

1. The user (local resident) inputs their memories on a digital map.
2. Other users see the memory inputted on the digital map.
3. Users input responses about the memory. At this point, users converse with each other.
4. The memories accumulate on the digital map.

Users input their memories on the digital map, following the above method. Memories inputted by users and conversations about the memories are accumulated by repeating this flow. In this way, the more memories accumulate, the more users can see other memories, and communication between local residents is naturally activated, increasing their opportunities to form relationships with other local residents through conversation.

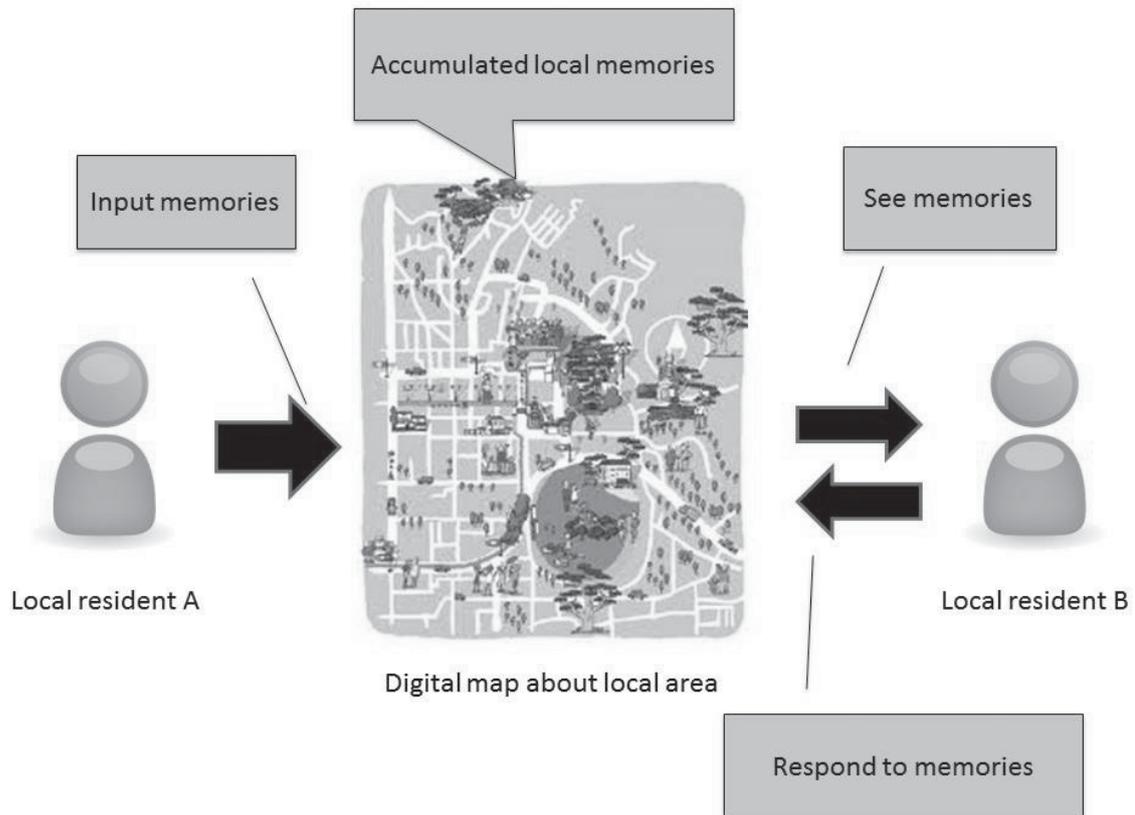


Fig. 1. Image of system

3.2 Memory-Viewing Screen

Icons that indicate types of memories are displayed at the places where local residents' memories are inputted on the digital map (Fig.2(a)). Users can see at a glance where and what type of memories were uploaded, by utilizing icons on the digital map (Fig. 3). Current social media services express all memories by only using language and pictures. However, by using a system with a digital map that has a strong connection to users and highly perceivable icons, it will be easier for users to intuitively understand what kind of memories are located in which places, and convey this information to other users. If icons were displayed for each comment, it would be difficult to see the digital map due to overcrowding of icons on the map. Accordingly, a serial conversation of comments about a single memory are compacted into a group, and displayed as a single icon. If users touch an icon that is displayed on the digital map, the first part of the most recent comment about the registered memories and the number of comments are displayed in a text balloon. When the user touches the text balloon, the system transitions to the memory's detail screen (Fig. 2(b)). At this point, the detailed memory about the place marked with the icon is displayed. By only seeing the memory's icon, location and start of the comment, without transitioning to the detail screen, it is easier for users to search for memories that interest them from among the various memories on the map.



Fig. 2. Digital map screen with icons, and detail screen for an uploaded memory



Fig. 3. List of icons

3.3 Anokoro Travel

In this system, other users can see memories uploaded by a user. Although users can see various types of memories when all uploaded memories are displayed, it is difficult to recall local memories for each era, i.e. the appearance of the area at each particular time period. Thus, this system appends age information to uploaded memories. We call this function, which displays memories of a specific era when users view memories, “Anokoro Travel” (“anokoro” means “that time” in Japanese). (Fig. 4(a)). When people talk about their memories to others, it is common in Japan to say “in my junior high school days” rather than “when I was fifteen”, for example. This is because Japanese people tend to talk about their recalled memories in units that mark

the stages of their lives, such as the six years of elementary school or the three years of junior high school. Therefore, we provided a function in this system to search for specific ages and eras. When implementing this function, we included a screen for inputting the user's age, because this system needs to calculate the era from user's age beforehand (Fig.4(b)).



Fig. 4. Selection of memories based on life stages

3.4 Memory Input Screen

The method of inputting memories is as follows.

1. Extended tap at the location on the map where the user wants to register a memory.
2. Select an icon that matches the image of the memory.
3. Input accurate age of the user for the memory, or select from a list of choices.
4. Input memory using text.
5. If using a picture, take a photograph at the location or select a picture from the user's library.

When users input a memory, they tap and hold the place on the map for the memory that they want to input. After the extended tap, a pin graphic appears at the location. Then, users select an icon that represents their category of memory (Fig. 5(a)). Next, users input the era for the memory (Fig. 5(b)). For example, the memory is

registered as the period of three years of junior high school when users select a memory of their junior high school days, because the user's age has been registered beforehand. In addition, users can assign an accurate year, such as 2000 or 2002. Finally, information that cannot be conveyed with an icon alone is input using text and/or a picture. If users do not have a picture relating to the memory, they can take a photo at the location or select a picture from the user's library after uploading the memory.



Fig. 5. Memory input screen

4 Evaluation Experiment

4.1 Experiment Outline

In our experiment, we communicated with a group using our system and a control group who did not use the system, and evaluated differences in the degree of intimacy in each group. One group used our iPhone application, and the control group met three times in the course of one week and spoke freely without using the iPhone application. We conducted surveys on each group's awareness about interaction with their neighbors before and after this experiment, and evaluated the changes. When neighbors meet and talk with each other, the group's degree of intimacy will obviously improve; therefore, we conducted an experiment to determine to what extent the neighborhood awareness of the group using this system (who did not meet) approached the attitudes of the control group (who met directly).

4.2 Experiment Participants

This experiment targeted people who live in the same area, and meet the following conditions.

1. People who have seen each other but have not talked.
2. People who have never talked to each other.

Accordingly, we selected two groups of five people who match the above conditions and attend Ritsumeikan university. The composition of each group of five is as follows: two males in their twenties, one male in his thirties, one female in her twenties, and one female in her thirties.

4.3 Experiment Results and Consideration

In the experiment, users answered the following questions, in consideration of the other group members as their neighbors.

1. When you meet people that live nearby, do you greet them?
2. When you have trouble or problems, do you consult your neighbors?
3. Are you interested in what kind of people your neighbors are?
4. When you have an emergency, do you ask for your neighbors' help?
5. In times of trouble, would you be able to cooperate with your neighbors?
6. Do you participate in local activities (neighborhood association, cultural/learning-based group activities, volunteering, etc.)?

In Question 1, we surveyed whether or not people conduct basic greetings. After the experiment, the degree of intimacy rose in the control group, who had met and spoken directly with each other: all members answered "I greet them voluntarily". The system-using group also gained a more positive attitude. Before the experiment, one person in the system-using group answered "I do not greet them", but after the experiment, all members answered "I greet them voluntarily" or "I greet them if they greet me first". After using the system, the users are no longer complete strangers, and it can be considered that they began to feel that they should greet people due to having a connection.

In Question 2, we surveyed the degree of neighborly association. We consider that if the neighborly relationship is one where people can always consult each other in times of trouble or problems, it is a strong neighborly association. With the exception of one participant, nine of our participants answered before the experiment that they do not consult their neighbors. After the experiment, three of the control group, and two of the system-using group, answered that they "can consult neighbors, although it depends on the type of problem". Furthermore, all of the remaining participants recognize their neighbors as desired confidants, answering that they "want to consult them, but cannot do so because we are not close". Thus, we found that an awareness of wanting to consult one's neighbors about problems, if a close neighbor exists, is generated by the act of communicating.

In Question 4, we asked whether or not consultation with neighbors in times of emergency was possible, and received similar results to Question 2. However, there

was an increase in the proportion of those who answered “I want to ask them, but we are not close so I cannot” in the system-using group.

In Question 5, we asked whether or not participants could actually meet their neighbors and help each other out during times of trouble, such as a natural disaster. In the control group, all answered “I can” after the experiment. On the other hand, in the experiment group, there was no change before and after the experiment. Cooperative action in disasters or times of trouble requires mutual trust. It can be considered that the system-using group members were not able to improve mutual trust in comparison to the control group, who met directly, due to the fact that the system-using group did not meet in person.

Question 3 surveyed whether or not users are interested in their neighbors. Before the experiment, three participants in each group answered “I am not interested in my neighbors”. After the experiment, all of the control group, and four of the system-using group answered “I am interested in my neighbors”. Here, using the system had a broadly similar effect to meeting and talking directly. Participants were not interested in people with whom they do not have a regular chance to communicate, but after the experiment, we found that users were interested in each other due to the system’s provision of an opportunity for communicating.

In Question 6, we asked about attitudes towards participation in local activities in the whole region. Two participants in the control group and one member of the system-using group answered “I do not want to participate” before the experiment, but changed their answers to “I want to participate” after the experiment. Thus, we found that using the system produced a positive attitude towards local activities.

We summarize our consideration of the above survey results as follows. The system improved basic awareness of neighborhood interaction whereby users became interested in strangers and wanted to greet them to the same degree as people whom they met directly. Generation of this awareness led in turn to an awareness that users “want to consult” with their neighbors regularly. However, regarding asking neighbors for help when emergencies such as natural disasters and personal troubles were envisaged, the control group, who met each other directly, developed better mutual trust. This result is considered to be due to the fact that trust is more greatly improved by meeting in person and communicating directly, than by using the system. Thus, it is possible to create a basic neighborly relationship and develop interest in each other using this system, and if the system acts as a trigger to develop neighborhood connections such as talking when residents pass each other in their town, essential neighborhood interaction can be regained.

5 Conclusion

It was demonstrated that the proposed method stimulated an awareness of wanting to understand one’s neighbors, by recalling and sharing memories common to all residents of a local area. Henceforth, we are considering a support tool to resolve problems in regions affected by natural disasters, because we believe that utilizing memories may enable recreation of the town as it was in pre-disaster times on an emotional level, and revive the feelings of disaster victims.

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