Optimized Anonymity for Intergenerational Communication Based on the Concept of Crowdsourcing

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Abstract. The grandparent-grandchild (GP-GC) relationship is considered important especially in hyper-aged societies with low birth rates. With the popular trend in information and communication technology (ICT) towards SNS-like crowdsourcing, our aim is to create GP-GC-like relationships among users of online social networks. As a first step, we conducted an experiment in which we connected seniors and young people on an SNS. Our results indicate that seniors are interested in young people's life-logs, but most of their comments in the experiment were in the form of overbearing or meaningless advice. On the basis of these results, in this paper, we also discuss the design of a system that facilitates an augmented GP-GC relationship.

Keywords: anonymity, seniors, crowdsourcing, SNS.

1 Introduction

The grandparent-grandchild (GP-GC) relationship is considered important [1] especially in hyper-aged societies with low birth rates. For grandchildren, grandparents seem to provide them with communication-based emotional support [2] similar to that provided by mentors. Grandparents also view the GP-GC relationship positively, because they feel joyful and proud when they communicate with their grandchildren [3]. However, these days, almost three-quarters of the population of older people in developed regions are living independently and the predominance of such people is likely to increase [4]. Many attempts have been made to connect grandparents and grandchildren using information and communication technology (ICT) as a bridge [5–7]. In the research studies conducted, the online GP-GC relationship was accepted and viewed favorably.

With the facilitation provided by ICT, new forms of online communication, such as social networking services (SNSs), have become pervasive. Despite the digital divide that predominantly impacts seniors, some of them are still able to recount historical stories or give advice to young people on SNS platforms such as Twitter[1]. Furthermore, recent crowdsourcing platforms have become more SNS-like, in that they are no longer as mechanical as they were before. For example, Socialgift[2] and bemool[3] are systems for task sharing but have some features for online communication.

With the popular trend in ICT towards SNS-like crowdsourcing, our aim is to create GP-GC-like relationships among users of online social networks.

Our aim is to use SNS-like crowdsourcing to create GP-GC-like relationships among users of online social networks. As a first step, we connected seniors on an SNS called "Kashiwa Social" [8], an SNS for seniors, and young people on Twitter. In this paper, we report on how seniors reacted and interacted on the SNS and discuss the design of an augmented GP-GC relationship.

2   Methodology

SNS for Seniors
"Kashiwa Social" is an SNS used by seniors in Kashiwa [8]. The service is optimized for seniors (Fig. 1) and is based on Teleda, made by Japan Broadcasting Corporation (NHK). The service has 85 users, 70 seniors and 15 facilitators. The facilitators in the system promote communication among the seniors. The seniors range in age from 60 to 78 years, with the average age being 67.0 years. The facilitators range in age from 30 to 49, with the average being 37.7 years. Kashiwa Social consists of community groups, with each community centered around a discussion theme. We used the "Talk with young people" community in our experiment. In each community, topics are posted and commented on by users.

(a) Top page   (b) Topic page   (c) Comment page

Fig. 1. Kashiwa Social

Connect with Young Users on Twitter

We constructed a mediator system to connect Kashiwa Social, used by seniors, with young people on Twitter. The young participants comprised five male university students ranging in age from 22 to 24 years. The mediator system caught their tweets via the Twitter Streaming API[4]. If the tweet was not a reply to a specific topic, the system posted the message on Kashiwa Social as a comment on the user's topic. The system tweeted posts by seniors on Kashiwa Social using the system's Twitter account as replies to the young users. A system account was used to post seniors' posts so that young people could not determine exactly who posted the reply. When the young people replied to the tweet, the system replaced their Twitter screen names with names allocated to them on Kashiwa Social. In this way, seniors were able to determine whom the young people's replies were for. We used topics to introduce the young people's profiles, and gave more information gradually (Table 1), in order to determine the influence of anonymity (of the young people) on the actions of the seniors.

Table 1. Sample topics

Day	Title	Text
1	Nice to meet you.	I am a university student.
8	Thank you for your continued support.	I am researching the use of social media for intergenerational communication. I will work for a start-up company. I am interested in girls, wine, and ICT.
15	I have some questions I would like to ask you.	1. What kind of literature are you interested in? 2. What do you want to do on the Internet? 3. What are some important things to take into consideration when choosing a company to work for?

3   Results

Of the 70 seniors, 38 visited the community during the experiment. From time to time, the mediator system became inoperational due to network error. The system was inoperational over the period spanning the 22nd to the 33rd day, (Fig. 2(a)), and the number of views from the seniors in the community fell (Fig. 2(b)). This statistic indicates that the absence of new tweets from the young people resulted in seniors staying away. From this point on, we focus the results obtained up to the 21st day. From the viewpoint of anonymity, changes in the topics introduced did not seem to affect the number of views in this experiment (Fig. 2(b)). Over the three-week period, the number of views from the community was 143 and that of posts was 16 (Fig. 3). The number of posts was small; however, the results show that seniors are interested in young people's life-logs compared to other communities. The following are examples of the posts submitted by seniors:
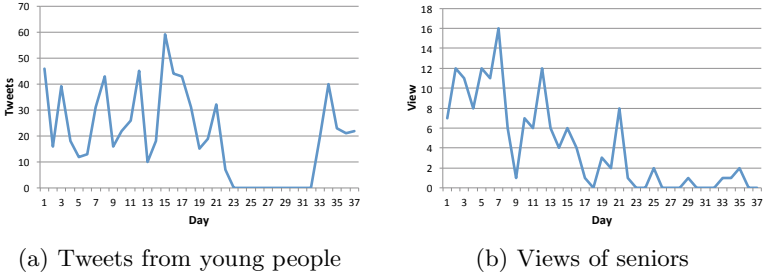
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[4] Twitter API: `https://dev.twitter.com`

(a) Tweets from young people   (b) Views of seniors

Fig. 2. Daily transition

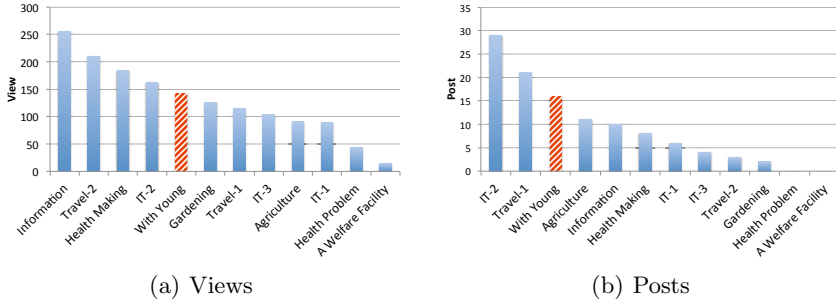

(a) Views   (b) Posts

Fig. 3. Comparison of communities

– I want you to relax the tension and do your best.
– Rockefeller said, "The most important thing for a young man is to establish credit–reputation and character." Do your best.
– You said your English is poor, but you should study much harder before you say so.
– What do you think about the teaching of history topics such as Myths in the university?
– First, answer your question by yourself.

4   Discussion

The senior participants were more interested in our community on Kashiwa Social than they were in other communities, However, most of their comments were not the answers we expected to the questions posed by the young people. They sometimes gave us supportive comments, but some were overbearing or meaningless monologues. They complained in the interview, after the experiment on the SNS user interface, that the tweets from the young people were too difficult and complicated to understand. Further, we use tweets for selected contexts of the young people's lives, but they wanted to get more details about the young people, such as face, hobby, relationship status (single, in a relationship, or married). For the young people, we need to present the personalities of the seniors

in abstract by making them into a crowd, but we also need to clearly identify the young people for the seniors.

5   Conclusion

In this paper, we reported on our first attempt at creating an augmented GP-GC relationship in which an SNS used by seniors was connected to young people on Twitter. Our results indicate that seniors are interested in this type of communication with young people than with other types of communities in the SNS. On the other hand, the replies from the seniors were found to be overbearing or meaningless. We used tweets from young people as a means of familiarizing the seniors with the young people's lives, but they wanted more details.

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