

# Regional Difference in Problems during the Use of the Cell Phone by Senior Users

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**Abstract**— In this paper, authors focused on the use of the cell phone by senior people living in the urban area and the rural area in Japan. The result of the questionnaire research showed that there are differences in the use of the cell phone, especially with regard to the competence between two areas. The result showed that senior people living in the rural area have less knowledge and less motivation compared to those who living in the urban area for solving problems by themselves.

**Keywords**— usability; cell phone; senior users; regional difference

## I. INTRODUCTION

It is generally said that senior people are not skillful at using high-tech devices such as the cell phone and are not using them actively. In Japan, it is reported that senior people, whose population is about a half to one-third of their 20's, 30's and 40's, are using the cell phone, though the number is gradually increasing, according to the white paper on information and communication in Japan [1]. But there is less amount of information on how they are actually using the cell phone.

In our earlier study [2], it was found that senior people do not know and do not use as many functions as young people do with a very small number of exceptions. And it was also found that they tend to rely on other people rather than to try to solve problems for themselves.

In Japan, the widespread use of the cell phone contributed to solve the issue of the digital divide [3], as well as to minimize the regional difference. But, the literacy for using the cell phone among senior users differs depending on the residential area [4].

In order to increase the frequency of use and thus increase the social capital among senior people living in the rural area, it is important to know how they are actually using the cell phone and what kind of problems they are facing. This is the

motivation of this study to investigate the way by which the senior people are dealing with problems that may occur while using the cell phone. It will be effective for the improvement of the usability of the cell phone.

## II. METHOD

### A. Selection of Questions

At first, the interview research was conducted for obtaining the rough information on the use of the cell phone among senior people, then, the research questions were listed up for conducting the questionnaire research that revealed the current status and the problems of the cell phone use among senior people in a quantitative way.

The interview was conducted for 18 senior people of their 60's and 70's. Based on the narrative data, questionnaire items were created focusing on the use of the calling function and the mailing function.

### B. Informant

Questionnaire researches were conducted for 50 senior people (25 male and 25 female) living in the urban area and for 20 senior people (10 male and 10 female) living in the rural area all of whom possess the cell phone. Regarding the definition of senior people, we defined them as those who are over 60, whereas WHO defines them as those over 65. It is because the senior people retire from their job at around 60 and their life environment changes drastically around that age. The average age of senior people living in the urban area was 68.44 with the SD of 3.67, and the average age of senior people living in the rural area was 68.60 with the SD of 4.32.

### C. Period

The research was conducted from October to December of 2007. The questionnaires were sent to them and collected after 3 weeks.

D. Content of the Questionnaire

Question items were categorized into three groups as follows.

Question 1 : About calling operations

Informants were asked following two questions regarding five situations as below.

- (a) Can you do above operations with your cell phone? (I can / I can't)
- (b) Whether you often do above operations with your cell phone? (Frequently / Infrequently)
  - <1> Call somebody using the address book
  - <2> Call somebody using the log of past call
  - <3> Store your message using recording function
  - <4> Listen to the message recorded in your cell phone
  - <5> Register the phone number from the log of past call

Question 2 : About mailing operations

Informants were asked following two questions regarding six operations as below.

- (a) Can you do above operations with your cell phone? (I can / I can't)
- (b) Whether you often do above operations with your cell phone? (Frequently / Infrequently)
  - <1> Send a message using the address book
  - <2> Reply to the mail
  - <3> Forward the mail to someone else
  - <4> Attach the photograph to the mail
  - <5> Use the graphic symbol in the mail
  - <6> Register the address of sender to the address book

Question 3 : If you face with the problem the operation of the cell phone, how would you do? (Free answer)

E. Background Information

In 2006, there were total of 127,687,000 people living in Japan and 24,876,000 were over 65 yrs old (19.5%). The population of Chiba city was 910,000 and that of Ishigaki city was 47,000. Two cities have the similar ratio of population by age.

III. RESULTS

Results on the capability for calling operations and mailing operations were different between two areas. Result of the chi-square test and the residual analysis revealed differences of use at 5% level. These findings suggest that senior people living in the urban area have an excellent capability.

- Calling operations
  - <1> Call somebody using the address book
  - <5> Register the phone number from the log of past call
- Mailing operations
  - <1> Send a message using the address book
  - <2> Reply to the mail
  - <3> Forward the mail to someone else
  - <5> Use the graphic symbol in the mail
  - <6> Register the address of sender to the address book

Results on the frequency for calling operations and mailing operations were different between two areas. Result of the chi-square test and the residual analysis revealed differences of use at 5% level. These findings suggest that senior people living in the urban area are used to such operations.

- Calling operations
  - <5> Register the phone number from the log of past call
- Mailing operations
  - <1> Send a message using the address book
  - <2> Reply to the mail
  - <5> Use the graphic symbol in the mail
  - <6> Register the address of sender to the address book

Results for Question 3 are summarized in Figure 1 as transition diagrams. It is quite interesting that many senior people living in the urban area cope with the problems in a number of ways.

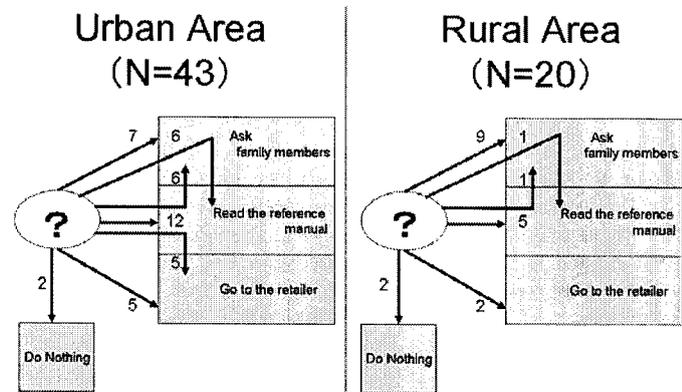


Figure1. Behavioral transitions on how senior people are coping with the trouble while using the cell phone (Comparison between the urban area and the rural area)

IV. DISCUSSION

General tendency found in this research is that the senior people living in the rural area scarcely master the cell phone mail compared to the senior people living in the urban area, but they frequently use the cell phone call that requires no complicated operations. In contrast, the senior people living in the urban area try to cope with the problems in a number of ways, and they became able to handle the cell phone mail. Finally, they can differentiate to use multiple "new media" including the cell phone call and the cell phone mail depending on the situation.

REFERENCES

- [1] Ministry of Internal Affairs and Communications, "White Paper on Information and Communication in Japan," 2006, (in English).
- [2] A. Hashizume, M. Kurosu, T. Kancko, "Use of Cell Phone by Senior Users Compared to Young Users," The 12<sup>th</sup> World Multi-Conference on Systemics, Cybernetics and Informatics Proceedings, 2008, pp.244-247, (in English).
- [3] Y. Wakabayashi, "Geography on the Internet - from the viewpoint of digital divide -," Monthly Report of Geography, 476, 2003, pp.19-21, (in Japanese).
- [4] A. Hashizume, M. Kurosu, T. Kancko, "Regional Difference of Cell Phone Literacy Among Senior People," Bulletin of Human Centered Design Organization, Vol.4, No.2, 2008, (in Japanese).