Evaluation of the web-based "home helper" support system using wireless internet mobile phones

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INTRODUCTION

A long-term care insurance law for elderly persons was put in force last year in Japan. The Home Helpers, analogous to the U.S. “Home Care Specialists”, are employed by hospitals, care companies or the welfare office, and are sent to the homes of elderly persons to provide the home welfare and care services. They are required to check their schedules and input their reports into the computer at their central office before and after each care visit, which requires a significant amount of time and extra travel. Last year, we developed the web-based Home Helper support system using wireless Internet mobile phone service.

In this study, we have evaluated the system's data entry method, the data arrangement, LCD display character size and the response time from the server to the device.

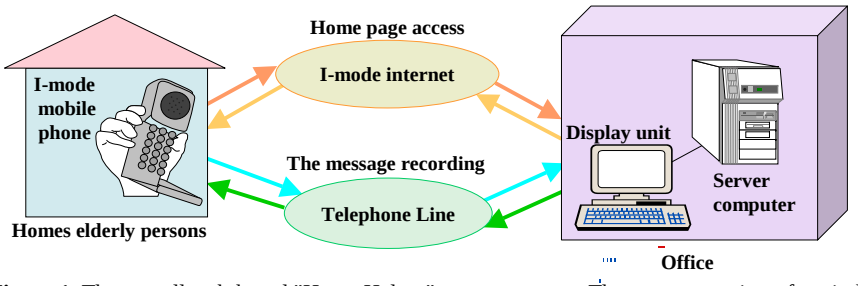

Figure 1 The overall web-based "Home Helper" support system. The system consists of a wireless Internet mobile phone (N502it, NTT Docomo, Japan) and a desktop computer (Performance 600, Gateway) with a 100 based-T Ether LAN adapter. The desktop computer is used as a server computer, which contains home pages for entering care reports by each Home Helper. The Home Helper accesses the home page, and then enters care reports directly from the mobile phone to the Home Helper can also enter the message by the voice via telephone line.

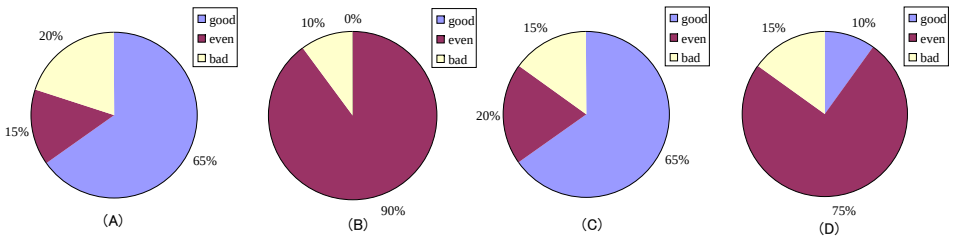

Figure 2 The evaluation results of operational method of the data entry(plot A), the legibility of characters displayed on the LCD(plot B), the comprehensibility of displayed care items(plot C), and the length of the data entry time(plot D). Investigations were performed on twenty normal age 20-22 male and female Home Helper subjects. Investigation is performed by entering three care items from the mobile phone. The questionnaire subjects concern the operational method of the data entry, the legibility of characters displayed on the LCD, the comprehensibility of displayed care items and the length of the data entry time.

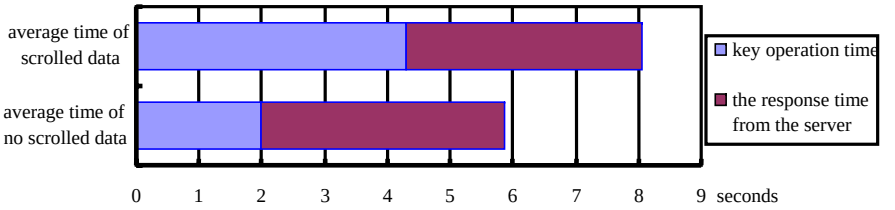

Figure 3 The data entry times measured for the scrolled data and no scrolled data. Three care items are displayed in the character size of 12 point on LCD. The length of data entry time is measured on two conditions when three items are displayed or not on LCD at a time. When the care items are described by a long sentence (many characters) such as “Taking to the hospital”, “Changing of the patient laying position” and “Putting the washed clothes in drawer”, then the small LCD can not display them all at one time. To solve this problem, the care items are displayed by using the scroll-up key, and the three care items with the short and long sentences are chosen and entered. The key operation time with the scroll up key was longer by 2.33 seconds than the no scroll up operation. However, 85% of the subjects did not detect this time difference.

CONCLUSION

Investigation is performed by entering three care items from the mobile phone. The questionnaire subjects concern the operational method of the data entry, the legibility of characters displayed on the LCD, the comprehensibility of displayed care items and the length of the data entry time.

1) The operational method showed that 80% of the subjects did not have any problems with the operational method.
2) The result of the comprehensibility of care items indicates that 85% of the subjects found this not difficult to understand.
3) The result of the legibility of characters displayed on the LCD indicates that 90% of the subjects being evaluated as normal.
4) The result of the length of data entry time indicates that 10% of the subjects were evaluated as fast, and 75% was normal.

The evaluation found the displayed data to be very suitable and the data entry to be an easy operation. In the future, development of a fast data entry method is required for reducing the communication costs.