

# Activating Communications among Family Members Living Far Apart by Sharing Common Topics through Television

Kentaro Takashima and Hiroyuki Umemuro

**Abstract**—The purpose of this research was to investigate how technology can help older people to share common topics and activate communications with family members who are living remotely. An intervention system was proposed to support common topics by sharing common experiences of watching television programs. The effectiveness of the intervention in activating communication among family members was evaluated.

## I. INTRODUCTION

COMMUNICATION with others is considered as a major factor to improve quality of life (QOL) of older people. Csikszentmihalyi [1] emphasized importance of social interactions, especially positive interactions with close friends, as a major factor contributing to people's QOL. Social supports including affection, affirmation, help, or encouragement, have significant influence on QOL of individuals [2]. Among them, support from family members, friends, and spouses is especially important, and leisure activities with those may have the most positive influence on QOL of people [3].

Older people living far apart from their family members, on the other hand, might have difficulties when communicating with other family members. One of the problems can be that they may not be able to find common topics for conversation even when they meet in person, because of differences in generations, interests, and lifestyles. Television (TV) programs might be a clue for finding a conversation starter, because TV programs and their related topics such as actors are shared by a large number population.

The purpose of this research was to investigate how technology can help older people to share common topics and activate communications with family members who are living remotely. An intervention system was proposed to support common topics by sharing common experiences of watching TV programs. The effectiveness of the intervention in activating communication among family members was evaluated.

## II. DESIGN OF INTERVENTION

The concept of the proposed intervention was to share the experience of watching TV program simultaneously

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Kentaro Takashima is with the Department of Industrial Engineering and Management, Tokyo Institute of Technology, Tokyo, Japan (e-mail: takashima.k.aa@m.titech.ac.jp).

Hiroyuki Umemuro is with the Department of Industrial Engineering and Management, Tokyo Institute of Technology, Tokyo, Japan (phone: +81-3-5734-2246; fax: +81-3-5734-2947, e-mail: umemuro.h.aa@m.titech.ac.jp).

(Fig. 1). Whenever any program is watched at a household, information of the program is transmitted to the other household, displaying the same program in a sub-monitor next to the main TV set. Audio is not played back, because it may interfere with the program currently watched in the main TV set.

If the user finds the program displayed in the sub-monitor interesting, the user can switch, using the remote TV controller, to the program from the remote household now displayed in the main TV set with audio.

## III. IMPLEMENTATION

The proposed concept was first discussed in focus group interviews with 16 older adults. Both negative and positive opinions obtained were reflected on improvement and refinement of the design of the intervention.

Then the proposed concept of the intervention was implemented as a network system. Fig. 2 shows the configuration of the system. Because it is not permitted for

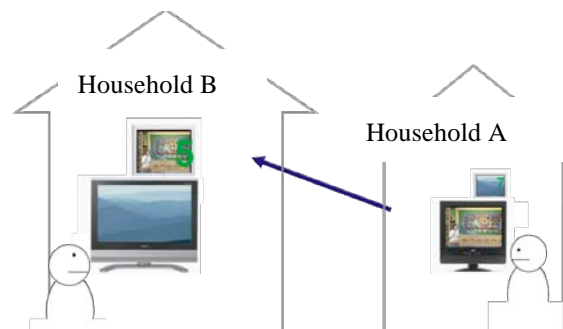


Fig. 1. Concept of the intervention. Information of the program watched on a TV set at one household is transmitted to the other household, displaying the same program in a sub-monitor next to the main TV set. Although this figure illustrates one direction of information transmission, the system was able two-way to exchange so that each household can watch the program seen at the other household.

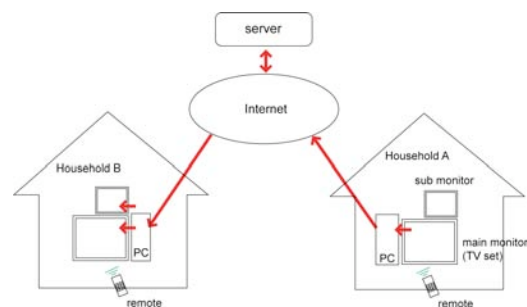


Fig. 2. Configuration of the implemented system. PCs installed at two households send and receive video and audio signals of TV programs, as well as their channel information, to the other site via the Internet.

general users to retrieve channel information from TV sets available in Japanese market, video-streaming technology over the Internet was employed to transmit the program information to the remote household.

One personal computer (PC) was installed at each household. PC retrieves audio and video signals of the current program played on the TV set, and transmits using video streaming technology over the Internet. The PC also listens to the remote controller, and if it detects the channel operations, it also sends the information of the current channel.

The PC at the other household receives the streaming information and plays back the program on the sub-monitor without audio. The PC also listens to the signals from remote controllers. If it detects that user wanted to switch to the remote program, the PC plays back the program on the main TV set with audio.

Although Figs. 1 and 2 illustrate one direction of information transmission, the system was able two-way to exchange so that each household can watch the program seen at the other household. Fig. 3 shows the appearance of the system with a TV set and a sub-monitor installed with a PC at a household.

#### IV. EVALUATION

The implemented system was evaluated by two groups of participants. Each group consisted of two households, one of which was elderly parents and the other was that of their children or grandchildren.

The system was installed at two households of a group at a time. Then the participants used the system for one week at their own paces. Quantitative data of the TV programs watched, both independently and simultaneously, were collected during the evaluation period.

After the evaluation period, participants from two households were asked to meet in person and to have conversation for at least half an hour. The topic was not specified. Finally, participants were asked to fulfill the questionnaire to probe their subjective evaluation on the system as well as its effectiveness in activating their conversation.

The quantitative data showed that in both groups of participants, it was observed that participants switched their TV sets to watch the programs that were sent from their remote counterparts. Most of those behaviors were



Fig. 3. The appearance of the implemented system. TV set and sub monitor are located besides PC at a household.

observed on late evenings, between 18:00 to 24:00. Younger participants appeared to have switched to the remote program more than older participants.

The subjective evaluation by the participants showed that both older and younger participants reported to have had interests in the TV programs watched at the remote household. They also reported that the experiences of watching remote programs could have broadened their interests. On the other hand, participants appeared not to feel the information of the remote family members conveyed by the system obtrusive.

Participants also reported positively that the usage of this system helped to find common topics and have active conversation when they met in person after the evaluation period. Older participants were more positive about the effectiveness than younger participants.

#### V. DISCUSSION

The results of evaluation suggested that the proposed intervention could support participants to have common interests in TV programs watched at the remote household. It was also suggested that the proposed intervention could support the participants to have common topics when they met in person afterwards. Thus the proposed intervention was considered to be successful to some extent in activating communications among family members living far apart.

Participants did not evaluate the information of the remote family members conveyed by the system bothering. On the other hand, some participants commented that the system could convey good sense of existence or *awareness* [4] of family members. This implies that the system also helped the participants to feel awareness of remote family members, which was not too strong to be obtrusive, but still enough to feel the connectedness.

The participants also reported a number of system issues to be improved. The implemented system should be further improved, reflecting the reported issues, and also be tested by a larger number of evaluators.

#### ACKNOWLEDGMENT

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