

Investigating the Effective Factors of Communication for Family Members Living Apart

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Abstract. Parents have difficulty in communicating with their independent children that live separately. Much research has focused on this problem and most solutions provide parents' information to the children, despite the parents' desire to understand their children. To foster communication by the parent, our proposal takes the unique approach of providing the children's information to the parent. As an initial experiment, we conduct a 15 day field study with three households to investigate whether the information of the children prompts parent into communicating with their children, and if so, how and what information should be shared. The result show that little information can prompt communication by the parent and keep a favorable attitude toward the child. We also discuss the design requirements raised by our findings with the goal of improving communication between family members living apart.

Keywords: elderly people, family communication, field study.

1 Introduction

Communication between parents and their adult children is weakening due to the increase in the number of parents living apart from their independent children. In our country, the ratio of multigenerational households decreased from 29.7% in 1998 to 16.2% in 2010. Concurrently, there was a significant upswing in the percentage of households that contained only elderly people, either singles or couples, from 45.1% to 54.1% over the same period (Ministry of Health, Labor and Welfare, 2010). Furthermore, the ministry says that as the distance between the households of family members increase, the less they communicate with each other. Communication with family plays an important role in maintaining good health and an active mind, especially for the elderly. Gerontological studies say that the family provides the elderly with both physical support and motivation in life, both of which are necessary for living, and a lack of communication with the family degrades the subjective well-being of the elderly. Thus a key goal is to support communication between the children and their parents living apart.

The critical issue causing the drop in communication, the lack of opportunity to know the state of the partner, has been highlighted in several papers [1] [2] [3]. Most

studies focus on providing the parent's information to trigger the adult child into initiating communication. However, some research suggests that parents desire to know their children's status more strongly than the reverse [4].

We hypothesize that information of the adult child should initiate communication. The information may give the parent a good opportunity to know their child's state and foster communication by the parent.

This study makes three contributions:

- We propose a unique communication support approach that uses information of the adult child
- We detail our 15 day field study involving three pairs of households
- We present two design requirements for communication support systems to link household members living apart

Section 2 introduces our research question and our new approach, and compares it to current alternatives. Sections 3, 4, and 5 demonstrate the effectiveness of our approach by discussing the field study results and the changes noted in the behavior of the parents and their attitude toward communication. Then, we identify some design requirements for communication between adult children and their parents based on our findings.

This study is the first step in designing a communication support system for parents and adult children living apart. The findings provide important perspectives and elucidate the design opportunities.

2 Related Work

As much previous research has suggested, when designing a system intended to foster communication between separated people we must carefully consider how to trigger the transfer the state of the partner.

The trigger most commonly adopted is informing the parent's status to the adult child. Digital Family Portrait is a picture frame which displays the parent's status as detected by sensors in the parent's home [2] [5]. The receiving terminal is located in the child's home and gives them some awareness of their parent. e-Home [6] is a communication system that includes home monitoring; it offers shared sticky notes and video-telephony for communication media while monitoring medication compliance. When the parent takes a medicine, a new sticky note indicating the event is automatically shared on both systems. Although those studies found that the parent's information could support the generation of connectedness or trigger communication, they limited communication initiation to just the child.

A few studies examined the equal provision of information to both parent and child. "Tsunagari-kan" communication [7] uses paired devices installed in the parent's and child's homes, each of which conveys presence information detected by motion sensors on the other side. It sounds when the user touches the unit. Shared Family Calendars [4] facilitates the sharing of calendar information between multigenerational family members. Although these studies reported that the parent perceived enhanced connection to their child by learning of their child's status, none of them examined the effect on communication or the ability to trigger communication.

To foster communication, the communication gap between the family members gave us a unique approach. Our approach is to pass to the parents their children's information to make the parents aware of their children's status. In the Shared Family Calendars' field study, all grandparents repeatedly reported enjoying seeing what their grandchildren were up to. On the other hand, the grandchildren did not look at the calendar of the grandparents [4]. This suggested that the parents were more interested in the younger generation than the reverse. Figure 1 shows the difference between our approach (right) and the others (left and middle). Past systems can be categorized into two types. One is shown on the left of Fig. 1. In this approach, the system makes the adult children aware of their parents' information and encourages adult children to initiate communication. eHome [6] and Digital Family Portrait [2] [5] are of this type. The other is shown on the middle of Fig. 1. In this approach, the system enables adult children and their parents to see each other's information and so encourages communication. Shared Family Calendars [4] is of this type. On the other hand, our approach is shown on the right side of Fig. 1. The system enables older adults to know about their children and encourages them to initiate communication.

We investigated what type of information should be shared with the parent. Technology has expanded the ability of people to share media and information with each other, such as photos [8], video chat [9] [10], and schedules [4]. These media and information contain rich personal detail and help parents know the status of their separated children well. Although more informative media and more information are more helpful to the parent, the interaction between parent and child can become complicated. The Casablanca project [11] pointed out that simple, ephemeral as well as expressive interactions are surprisingly effective in homes. The information shared from child to parent needs to be less informative to simplify the interaction, while remaining keeping expressive.

In this paper, we investigate the following two questions.

- If the parents get to know about their children by receiving information, will they initiate communication with their children?
- How rich do the shared contents have to be for the parent to initiate communication?

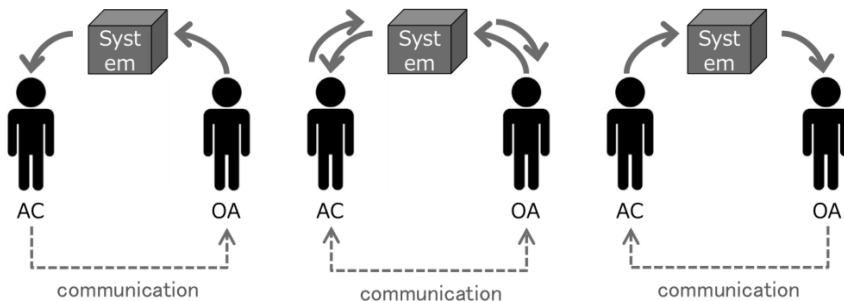


Fig. 1. Approaches for a communication support system linking an older adult (OA) and adult child (AC) living apart. (Left) The approach of eHome and Digital Family Portrait. (Middle) The approach of Shared Family Calendars. (Right) Our approach.

3 Method

We conducted a field study on three families from November 1st to November 21st of 2010. This section introduces the participants and describes how our study was designed.

3.1 Participants

Each of the three families had a parent living more than 120km from their child. All participants were female, i.e., mother and daughter, as it is said that females have a more positive attitude toward communication than males. In addition, all owned a mobile phone and were able to use the e-mail function.

The mothers satisfied two additional requirements. One was having no employment; a mother with a regular job would not have enough time to communicate with her daughter. The other was having no critical health problem; the daughter would contact her mother frequently if her mother had some health problems.

Household #1. A 57 year old mother living with her husband. Her 28 year old daughter is working as a clerical employee, and has lived apart from her parents since she got married three years ago. The mother wants to communicate with her daughter more frequently but she hesitates to call or e-mail her because she does not want to interfere with her daughter's independence.

Household #2. A 56 year old mother living with her husband and son. She is the busiest of the mothers. She belongs to a chorus and manages the group, has a part time job as a caregiver, and works on a little farm with neighbors. Her 22 year old daughter is a college student, and moved near her college one year ago because she wanted to concentrate on study. She works hard to complete her graduation thesis and pass a national examination to become a nurse. She also belongs to a chorus circle.

Household #3. A 75 year old mother living alone. Her husband died 28 years ago. She is the oldest of our participants and her vitality is slowly failing. She rarely goes out since developing a cataract, and she stays home without talking to anyone. Her 44 year old daughter lives with her husband and two daughters. She has been a full-time housewife since she quit her job. She worried about her mother and so e-mails her once every three days.

3.2 Daughter's Information to be Shared

To investigate how the richness of information shared determines the understanding of the child, we selected three types of content to be passed from daughter: greeting, photo, and today's news. They differ in degree of information richness.

Greetings. Greetings are the least information rich content of the three. There are several kinds of regular form according to time, such as "good morning" and "good

night”, they have no meaning other than as a greeting. Although greetings are less informative, they other expressiveness because they frequently open face-to-face communication in many situations. In particular, family members living together greet each other frequently.

Photos. Of the three contents, photos express the most personal information. Photos can capture a great scene directly. They are expressive as well as informative because of the power of visualization. As mentioned above, many previous studies use photos to support communication.

Today’s News. Today’s news lies intermediate between the first two. It is a text-based medium, the same as greetings, but can express more information than greetings. Today’s news is also expressive content for family because it covers the topics found in the daily conversations of family members living together.

3.3 Procedure

We explored how our approach helps to prompt communication and how the richness of shared contents affects the parent by observing the behavior and attitude of the older adult toward communication when the above information is received or sent. The information was generated by adult children and sent via their own mobile phone to their parents’ mobile phone in this field study. Mobile phones are a general information terminal in our country, and can transmit the above information easily. We separated the field study period into three phases. Each phase occupied five days including weekends as the participants had limited time to communicate during weekdays. In the first phase, participants were not given any instruction so we could observe their daily communication. In the second and third phases, the adult children were instructed to send their parents at least one e-mail that included targeted information everyday. The sets of phases and targeted information of each participant are shown in Table 1. Each participant undertook a one hour interview and questionnaires after each phase to assess the change in behavior and attitude toward communication and the partner.

Table 1. The three phases and targeted information of each participant

	Phase 1 11/1 – 11/5	Phase 2 11/9 – 11/13	Phase 3 11/16 – 11/20
Household #1	Daily communication	Greetings	Greetings
Household #2			Photos
Household #3			Today’s news

3.4 Data Analysis

To elucidate how well children’s information prompts parents to communicate with their children, we counted the number of times each parent initiated e-mail conversation voluntarily and compared the number in each phase. The questionnaires

asked how many times each participant sent e-mail and who initiated the conversation. As we found that there were inconsistencies between mother and daughter in a few parts, we compared each response, and determined the correct number.

The interviews with the participants lasted a total of 15 hours and were audio-recorded and transcribed. The resulting data set was used when determining why the participants changed their behavior.

4 Result

Figure 2 shows the number of times each mother initiated e-mail conversation. The white, gray, and black bars show the number in phase 1, phase 2, and phase 3, respectively.

First, we explore how the greetings, the least informative contents of the three, changed behavior and attitude of mothers by comparing the number of phase 1 and 2. While mother #1 and #3 never initiated e-mail conversation in phase 1, they did once in phase 2.

In the case of mother #1, the greeting e-mail from her daughter inspired voluntary contact by the mother on the last day of phase 2. She sent a greeting e-mail by herself by overcoming her sense of reservation, even though our instructions to her mentioned nothing about outgoing e-mail. According to the interview data, as she felt reassured by her daughter's greeting e-mail sent every morning, she just wanted to send a wonderful e-mail by herself.

"I think we exchange energy with each other through the greeting e-mail. Especially if some emoticons are attached to the e-mail, I feel reassured strongly. I was encouraged when I received it, and I encouraged her by replying to it with a message full of emoticons. Then, the idea to send the wonderful e-mail from myself arose suddenly on the last day of this phase. I just wanted to do it. I thought I will be happy if I can send it by myself." [Mother #1].

In case of mother #3, an incident that prevented her daughter from sending the greeting e-mail at the usual time caused her anxiety on the second day of phase 2. Her daughter usually sent e-mail, a greeting e-mail on the first day of phase 2 as well, around 9 p.m., but she did not because she had been out until late that day. Mother #3 was worried about her daughter and so texted her.

Although the graph shows that the number of communication sessions triggered by mother #2 decreased, the questionnaire data shows that the purpose of communicating changed in phase 2. She contacted her daughter because there was some kind of necessity to contact her daughter in phase 1. However, on the last day of phase 2, she sent an e-mail to share her feeling that she was relieved to have finished the second interview.

Second, we explore the impact of content richness by comparing the number of times mother #2 and #3 initiated e-mail conversation in phase 2 and phase 3. Both #2 and #3 showed an increase, but the cause was rather accidental. In the case of mother

#2, one of three times was to confirm her daughter's safety after an earthquake, but the others were same as phase 1. In the case of mother #3, some irregular events, e.g., her friend was operated on for cancer, and she would have an operation for her cataract soon, made her call to talk with her daughter.

Although the factors that initiated more communication in phase 3 than phase 2 were rather accidental, there were great differences in the number of replies to daughter's information and attitude toward it between phase 2 and phase 3. Figure 3 shows the number of replies sent by mother #2 and #3. The gray and black bars show the number in phase 2 and phase 3 respectively.

In the case of mother #2, the number of replies increase from three to twelve. In phase 2, the daughter sent greeting e-mail on three of five days. On one of the last two days, the daughter was too busy and forget to send the greeting, and another day, she almost forgot so her mother pushed her to send it. The mother replied once to each greeting e-mail. On one of the days in phase 3, mother #2's daughter sent a photo of stuff on her desk when she was studying, and the mother replied to encourage her daughter. The topic shifted naturally to those that were mostly related to the daughter's daily life. On another day in this phase, the daughter sent a photo of her new backpack, and the mother sent a positive response. They then talked about the daughter's schedule for the next day. Prior to the study, she tended to contact her daughter to achieve a specific goal rather than enjoying the companionship. In contrast, she sent e-mails about her daughter's daily life many times in phase 3. The mother's statement suggested that the photos of daughter's life were of interest to the mother and that they fostered communication about the daughter's life.

“Receiving the photo from her was a fresh experience for me. Unlike words, I could understand her more clearly because the photo appealed to my eye. And I saw something like a theme each in those photos rather than a sense of duty. As I could understand her life in detail, I naturally commented on it.”
[Mother #2]

In the case of mother #3, the number of replies increased from two to nine. In phase 2, mother replied to her daughter's greeting e-mail on just one day (she sent e-mail twice to the greeting on that day). As only mother #3 seldom replied to greeting e-mails, we asked her to explain. She answered that it was because she did not get any instruction.

“Because you gave me no instruction last time. I understood I did not need to do anything so I did not reply to it. And whether I replied it to or not, the greeting e-mail would come again because you instructed he to do so. I thought there was no reason to reply to it. I was lazy about responding.”
[Mother #3]

However, in contrast to phase 2, she responded to each e-mail with today's news in phase 3 even though the instruction to the mother was the same as in phase 2. Moreover, the daughter said in her questionnaire that she could see emoticons more frequently in her mother's e-mail. Surprisingly, the mother remembered all the news sent when we interviewed her at the end of phase 3, and she said she could understand her daughter's daily life specifically through the today's news.

“I do not think of replying to just a greeting email, but this time, she told me her daily life in detail. Indeed, she rarely discusses her story...” [Mother #3]

Although she was not aware she replied only to today’s news, it was assumed that she enjoyed her daughter’s news and responded to it without thinking. This change in the mother’s behavior emphasizes the importance of the daughter providing more detailed information to foster communication by the mother.

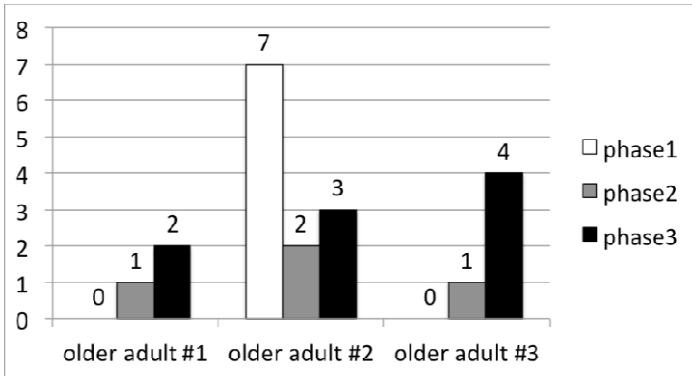


Fig. 2. The number of times each parent initiated e-mail conversation

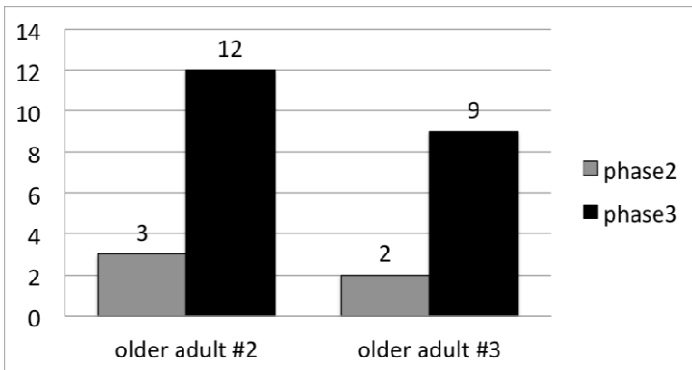


Fig. 3. The number of replies parent #2 and #3 sent

5 Discussion

We summarize the results as follows.

1. Child’s information helps parent to initiate communication even if the information is as information-light as greetings.
2. The more informative the contents shared with parent are, the more parents are prompted to initiate communication.

However, according to mother #2, the reason why she responded more in phase 3 than phase 2 was not only because the shared contents were more informative but because she repeatedly received e-mails from her daughter. As we did not consider the impact of this repetitive transmission, further investigation with more participants is required to clarify the second item.

The interesting point we found in this field study is that even information-light contents can prompt communication by the parent and keep a favorable attitude toward the child; how much the child's information impacts the parent depends on whether the parent can find some value in sharing the contents. In phase 2, household #1 exhibited a unique event; the older adult sent a voluntary greeting e-mail even though she was never instructed to send it. This event was unique in that the child sent a greeting e-mail early in the morning when she was busy preparing to go to work. The parent knew her child was going to work at that time. In this situation, the parent found special value in exchanging energy through the greeting especially at the busy time of the morning. Her comment helped us to understand that she felt care from daughter through the greetings:

"I felt happy when I received an greeting e-mail from her everyday. I understood that she remembered me and cared about me today as usual." [Mother #1]

To support communication between family members living apart, we should consider more carefully about how the support tool can maximize the value of communication. As our trial showed, value was created by the sense of care from the partner as well as by better understanding the child.

According to this finding, we find two design requirements for communication support systems. Both should be satisfied simultaneously by the same system.

1. Able to create a simple message in a simple way even when the sender is busy.
2. Able to convey rich personal information when the sender has enough time.

Designing a communication support system tends to be complicated with much information because the designer tries to supplement that channels that are not present with remote communication. However, the children, the sender side, are so busy generally that they sometimes have difficulty in communicating with their parents. To support the children in sending their information, the first requirement is essential. The communication support system should provide methods of different levels of complexity and enable users to freely select the method to suit their own circumstance.

6 Conclusion and Future Work

We showed the possibility that even information-light contents of child's life situation can trigger communication by the parent and keep a favorable attitude toward the child. A communication support system that gives users more pleasure must create short messages in a simple way while maximizing the richness of personal

information. Our next step is to design a communication support system that offers the function of conveying adult child's information to assess whether our design requirements alter communication between family members.

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