‘SILENCE IS GOLDEN NO MORE’ IN FAMILY DIGITAL ENVIRONMENT: UNDERSTANDING THE KINKEEPER ROLE THROUGH MOBILE SOCIAL MESSAGING SYSTEM

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‘SILENCE IS GOLDEN NO MORE’ IN FAMILY DIGITAL ENVIRONMENT: UNDERSTANDING THE KINKEEPER ROLE THROUGH MOBILE SOCIAL MESSAGING SYSTEM

Research

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Abstract

Contemporary extended families are living in an unprecedented age of connecting technology. Previous studies on family connecting technology (FCT) indicated the presence of someone who could be considered as a “kinkeeper” who keeps family members informed about one another. However, there has been limited research in HCI to date on who kinkeepers are and how this role is technically enacted in a family digital environment. In this paper, we present a study on digital kinkeeping by the kinkeepers through WhatsApp as a representative example of contemporary FCTs in mediating familial bonding. A two-phase study was undertaken. The first phase involved the log study of a period of 350 days of family group chat, while the second phase involved individual interviews to ascertain initial themes derived from previous phase. The findings provide evidence that kinkeeper may be one or more female members in a family virtual group. They were recognized through their constant and frequent appearance throughout interaction. They employed predominantly several strategies in initiating the first contact at the beginning of the day, and four common modes of digital kinkeeping. Then, the discussion outlines possible explanations for this evidence and poses avenues for future research in HCI for Information System.

Keywords: CSCW, digital kinkeeping, domestic HCI, family connecting technology, interaction design, IS HCI, mobile social messaging, technology-mediated familial bonding

1 Introduction

Research on ICT mediated connection in the workplace has flourished within the fields of Human Computer Interaction (HCI) under the sub-domain of Computer-Supported Cooperative Work (CSCW). The proliferation of connecting devices and services has led to the natural extension of CSCW into the realm of domestic collaboration offering new means of family connection. One of the increasing interests of domestic collaboration is on numerous promises introduced by Family Connecting Technology (FCT) - a group of connecting technologies which support families to communicate with each other, to share their domestic lives and to negotiate for being together and apart, in providing valuable social and emotional supports to family members (Gonzalez et al. 2012). They serve both distributed and collocated family members with some kind of awareness, connectedness, context and remembrance. In order to provide these social benefits, often specific user plays an important role in maintaining such familial bonding (Kamal et al. 2014; Romero et al. 2007; Tee et al. 2008). This spe-
cific member who takes a greater share in mediated bonding practices has been similarly reflected in
the concept of a kinkeeper from a sociological perspective (Rosenthal 1985). The interest that many
researchers have on FCT design, usability issues, and the use patterns within various family settings
are increasingly evident. Surprisingly little effort has been given to the sociality aspect performed by
the kinkeeper in family-technology interaction. This factor could be the reason of disininterest on FCT
uptake (Lindley 2012). In contrast to the earlier FCT research, more recent works suggest that “…
family [use of FCT] does not simply persist. Someone spends a great deal of time and energy to main-
tain it” (Gerstel & Gallagher 1993, p.598). In this sense, knowledge on how this ‘someone’ or
kinkeeper use FCT for bonding family members remained unexplored.

Devices such as laptops, tablets and mobile phones allow family members to engage with each other
in a more diverse ways. These include texting, sharing various types of media and updating status,
which might as well indicative of a shift to a frequent mode of family interaction. Of particular note
here has been the massive adoption of mobile social messaging systems such as WhatsApp and
WeChat. The affordability and reliability offered by such applications (Amanullah & Ali 2014;
Church & Oliveira 2013) only lend shallow accounts on family practices surrounding their usage.
Families certainly use and adapt the features designed for these systems but it is not clear on the
rationalisation of such actions. There is a need to capture the essence of bonding-affordances sought
for and enabled by such systems in ways that reach beyond traditional usability issues and concerns.
With much similarities in features offered by earlier designs like capability in sharing pictures, audio
and videos instantly, and sending text messages, WhatsApp seems appropriate to capture a rich expla-
nation on the role of kinkeeper in FCT-mediated bonding.

Drawing on these arguments, this paper presents the findings from an in-depth qualitative study on
WhatsApp used by 37 participants from 16 households. They are from a distributed extended family
comprising individuals related by kin ties who live either in near proximity or far apart including those
who live in one household. By exploring a corpus of family chat log for a period of 350 days, we rec-
ognize designated kinkeepers through considerable repetitive kinkeeping activities performed by simi-
lar participants, which contribute to the manifestation of mediated bonding. Subsequent open inter-
views with eight participants have further illuminated initial themes derived from family chat analysis.
By corroborating data from these sources, we found that kinkeeper often incorporated text messages
with other elements such as photo and emoji to indicate their daily presence. Even sending a short
message to others is sufficient to indicate their efforts in making continuous contact. Although asym-
metrical interaction occurred at times, they never felt disappointed as they were happy to perform the
roles in initiating contact continuously, keeping records, organizing future family events, and provid-
ing supporting information which are very similar to traditional view of kinkeeper. What differs is that
FCT alters kinkeeper role by increasing the frequency of the role performance, provides kinkeeper a
feasible way in performing the aforementioned online activities with an additional richness that is
constitutive to a subject of interest shared by others, and highlight the specific kind of information re-
quired by members. Virtual family group without the involvement of kinkeepers has been associated
with silence; this signifies their important roles in the establishment of FCT-mediated familial bond-
ing. Relying on these qualitative understandings, we discuss implications of our findings and suggest
directions for future research, which may contribute to sustainable practice in mediated bonding and
relationship-building in general.

1.1 Related Study

Work in the field of interaction design illustrates various possibilities for connecting family members.
A wealth of evidence suggests that familial bonding is important for people’s quality of life by provid-
ing a buffer during difficult transitions and other problems, which warrants interchange of informal
social support (Leach & Braithwaite 1996). Several sociologists have echoed to study interaction as a
way of family support through four approaches: 1) examining the messages exchanged to seek and
express support, 2) investigating interactions that encapsulate the establishment and interpretation of

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supportive messages, 3) studying the ties that are created by, and 4) contextualizing the supportive interactions in which family members engage (Burleson et al. 1994). Nowadays family members are often forced to live apart and even when they live in close physical proximity, modern and busy lifestyles have changed family interaction (Aziz & Yusoff 2012). Accordingly, there has been a flourishing interest in designing FCTs to facilitate such bonding. Efforts have gone into exploring how feelings of connectedness, love, and intimacy might be maintained through the inventions of new designs. This includes exploration of how to connect family members who live separately or collocated. Examples of intra-family messaging systems include WhereAbout Clock (Sellen et al. 2009), Family Circles (Schatorje & Markopoulos 2013) and SonicAIR (Baharin et al. 2015) which are used by members to tell each other about their location, activity, and status. On the other hand, prototypes such as Family Portal (Judge et al. 2013) and Family Board (Pan et al. 2015) have also been designed to support inter-family communication referring to messaging between one or more households where there may be more than one distinct family unit involved.

The research described above touches on ways of connecting family mainly from a design perspective. However, in reporting empirical evidence on the usage pattern of FCT, very little has been highlighted on the important role of the specific family member – the kinkeeper in giving rise to bonding-related experience. They are pivotal in performing such family maintenance (Leach & Braithwaite 1996) or what is termed as FCT-mediated bonding in the context of this study (Kamal et al. 2015). Indeed, current studies on FCT have already recognized kinkeeper as an interesting issue. There is a realization on the existence of “certain family members [who] acted as a “communication hub” that kept everyone in the extended family updated about how others were doing” (Tee, Brush, & Inkpen, 2008, p.137) that is well-accorded with Gerstel and Gallagher’s (1993) description of a family kinkeeper. Interestingly, women often hold this informal responsibility to help family keeping in touch with one another (Kamal et al. 2014; Romero et al. 2007; Tee et al. 2008) although there is a contrasting view on this gender assignment (Lindley 2012). Similar studies also suggested that kinkeepers viewed learnability and availability of other preferred alternatives as hindrances to perform their kinkeeping roles through FCT. In fact, the role of kinkeeper goes beyond the realm of mundane family communication. A recent study in interaction design on annual family ritual has also emphasized presence of a single person during family ritual preparation in planning and organizing the event on the basis of love for others, personal interest and sense of responsibility (Petrelli & Light 2014). This further indicates the significant role played by kinkeeper in maintaining family interaction and is potentially central to FCT design. To date, however, there has been little systematic study that focuses on special role of kinkeeper in family-technology interaction: who kinkeepers are and how they technologically enact this role. Since there has been relatively little inquiry on kinkeeper’s role in digital environment, this paper is primarily concerned with unfolding the identification of kinkeeper and enactment of kinkeeping through FCTs, and further discussing consequences of kinkeeping communication in family-technology interaction specifically, and more generally in HCI for Information System (IS). In order to do this, we will first present a brief review of the common roles of kinkeeper from a sociological perspective, and will then turn to the design of our research in Section 2.

1.2 A Sociological Perspective of Kinkeeper

The concept of kinkeeping encapsulates all of the efforts family members make in maintaining bonds between members both for intra and inter-generational family (Brown & DeRycke 2010). It is unlikely that the provision of bonding works is equally shared by all family members and, in fact, these works may become the role of a specific member or members within families - kinkeeper (Rosenthal 1985; Gerstel & Gallagher 1993). Table 1 summarizes the kinkeeper activities widely recognized within sociology. Added to these activities, kinkeeper also involves in keeping some types of family records such as a family tree (Lindahl & Back 1987). These studies also suggest that works of kinkeeping have long been assumed as women’s work and they will devote their time and energy to initiate contact and perform these activities in maintaining familial bonding. The salience of female as a kinkeeper fulfils

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Wood’s (1994, p.85) description of the cultural expectation on women as “supposed to care about and for others and to be nice, responsive, supportive and friendly”.

<table>
<thead>
<tr>
<th></th>
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<th></th>
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</thead>
<tbody>
<tr>
<td><strong>Kinkeeping activities</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organizing family gathering</td>
<td>Doing practical tasks (laundry, meals, repairs, gives a ride, helps when sick, care of child, housework)</td>
<td>Continuing the former kinkeeper’s work</td>
<td></td>
</tr>
<tr>
<td>Writing</td>
<td>Performing material tasks (Money, gifts, goods)</td>
<td>Facilitating rituals</td>
<td></td>
</tr>
<tr>
<td>Visiting</td>
<td>Performing personal tasks (talk personal problems, job advice, other advice)</td>
<td>Maintaining family togetherness</td>
<td></td>
</tr>
<tr>
<td>Telephoning</td>
<td></td>
<td>Providing information</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Providing assistance</td>
<td></td>
</tr>
</tbody>
</table>

Table 1. Kinkeeper activities

In short, kinkeeper inevitably affects family interaction to maintain family bonds through a number of kinkeeping activities. Kinkeeper has the power to alter and distort the information while performing a gatekeeping function, and can be an influential determinant of whether a family interacts effectively or not (Pearson 1993). In fact, by taking on the role, kinkeepers exposed themselves to get involved in other’s conflict (Leach & Braithwaite 1996) and holding long-term responsibility (Rosenthal 1985) which include developing distress (Gerstel & Gallagher 1993). Yet, still kinkeeping works have often gone unnoticed, not fully appreciative and devalued (Oliker 1999).

2 Method

The study reported here is a part of a wider user study in which 16 households employed a mobile social messaging system – WhatsApp, to communicate with family members by creating a virtual messaging group. The aim was to disclose how messaging system has been adapted by a distributed extended family over time in mediating familial bonding. This paper focuses on one of the interesting issues, the role of kinkeeper during interaction. To uncover kinkeeping in a digital environment, this study seeks to gain a thorough description of the kinkeeper’s recognition and enactment of digital kinkeeping as an interactive activity, through the identification of recurring patterns of behaviours and meanings. As such, the overall design of the study was in the qualitative tradition using interpretative approach (Creswell 2007). Wherever appropriate, we corroborated quantitative evidence derived from the log study to further illuminate the findings. In meeting these goals, we posed three research questions which were answered through a two-phase study design:

RQ1 : How can kinkeeper be recognized in digital environment?
RQ2 : How frequently do kinkeeper interact with family members?
RQ3 : What are the outcomes of digital kinkeeping both for the family and kinkeeper?

Although the findings presented in Section 3 are limited to the particular sample of FCT, extended family and kinkeepers we were able to access, our participants and informants provided us with ample data in the form of 31,232 messages in various media types and approximately five hours of interview data. The analysis of chat data in the first phase generally identified the emergence of kinkeeper and how digital kinkeeping were performed by kinkeepers in general. Using the themes and categories derived from earlier analysis, we then develop interview questions to be used with the selected informants to capture deeper explanations about patterns of digital kinkeeping in the later phase.
2.1 WhatsApp

In this study, our participants used WhatsApp as their FCT of choice to connect with family members. WhatsApp has been interchangeably referred to as a mobile instant messaging application or, mobile social messaging system. It represents an FCT exemplary in this study. WhatsApp chat is presented on a single scrolling wall in a series of threaded messages using spatial position of which users can be distinguished through contact number, name or colour. Users can include text, emoji, images, audio and video clips, URLs, and location data in message composition. Notification of delivery is presented through single or double tick markers next to the time stamp. Recently, WhatsApp introduces the message read status marked by double blue tick of which the notification can be selectively turned off in one-to-one chat but not in the group chat. Status message such as when the recipient was “last seen online” could also be displayed selectively by users. Currently, it can be accessed on smart phones and web via desktop browser.

2.2 Phase I: Log Study

2.2.1 Family Clusters

This log study was conducted with 37 participants involving 16 households from 10 family clusters. All of the participants belong to a distributed extended family in Malaysia, and the relationships between participants are illustrated in Figure 1. We used pseudonyms to maintain the anonymity and confidentiality of each participant. Here, the family cluster is referred to individuals related by immediate family ties but are not necessarily living as one household (Romero et al. 2007). The participants include 2 individuals in their teen age, 11 in their twenties, 8 in their thirties, 9 in their forties, and 7 in their fifties. The participants consist of 20 females and 17 males. They were recruited using purposive sampling via close networks of one of the researcher.

![Figure 1. A family tree diagram illustrating the relationships among the participants.](image)

2.2.2 Procedure

The selected family clusters have been using WhatsApp as the primary FCT since October 2013 up till now, but for the purpose of this study we only retrieved a sample chat log from WhatsApp server dated back from the onset of group initiation for analysis (October 2013 until August 2014). All participants have installed WhatsApp application on the Android platform except for one participant who
installed the application on an iOS platform. Apart from WhatsApp, most participants had other messaging applications installed on their devices such as Telegram and Facebook, but they have been using WhatsApp as their primary FCT for the past few years. A corpus of message log for a period of 350 days was examined in two phases. We used simple descriptive analysis in the first phase to obtain the frequency of message posts for each participant. Then, we further probed into the chat data using affinity diagram to help identify emerging patterns (Bondarenko & Janssen 2005). In the first session of affinity diagram building, all initial themes on the sticky notes derived from the chat data were attached to a wall. Then, the notes are categorized and categories are named in the structuring part. The log data was partitioned into units of chat for a convenience. A unit of chat is defined as a sequential messages without five minutes or more separation between two consecutive messages (Isaacs et al. 2002). Altogether, we analysed 6,328 units of chat. We also extracted samples of the kinkeepers’ work from the photographic and textual log data to crystallize the actual occurrences of digital kinkeeping. These were used to develop triggering questions to frame the context of individual interview in the next phase.

2.3 Phase II: Individual Interview

2.3.1 Informants

The interview sessions were completed by 8 informants of which 4 were women and 4 were men who were selected from 6 distinct family clusters. Relying on the log analysis in the preceding phase, we categorized each participating family member in the group chat into three distinct types: the regular member with frequent appearance, the barely participating member with on-off appearance, and the barely member with very rare appearance or non-appearance during the course of interaction. Accordingly, of the total of 8 selected informants, 2 were the recognized kinkeepers cum regular members, 2 were regular members, 2 were barely participating members, and the rest were barely members. Table 2 depicts demographic detail of participating informants, and the type of group membership. All informants were included to maximize diversity, and at this stage no rewards were given for participation in interview. Pseudonyms are used to protect informants’ anonymity.

<table>
<thead>
<tr>
<th>Name</th>
<th>Gender</th>
<th>Age</th>
<th>Family Cluster</th>
<th>Occupation</th>
<th>Location</th>
<th>Membership type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anne</td>
<td>Female</td>
<td>48</td>
<td>Arif’s Family</td>
<td>Housewife</td>
<td>Penang</td>
<td>Kinkeeper</td>
</tr>
<tr>
<td>Rose</td>
<td>Female</td>
<td>50</td>
<td>Adam’s Family</td>
<td>Housewife</td>
<td>Kedah</td>
<td>Kinkeeper</td>
</tr>
<tr>
<td>Omar</td>
<td>Male</td>
<td>46</td>
<td>Omar’s Family</td>
<td>Engineer</td>
<td>Penang</td>
<td>Regular</td>
</tr>
<tr>
<td>Jasmin</td>
<td>Female</td>
<td>57</td>
<td>Edy’s Family</td>
<td>Pensioner</td>
<td>Kedah</td>
<td>Regular</td>
</tr>
<tr>
<td>Hairi</td>
<td>Male</td>
<td>30</td>
<td>Imran’s Family</td>
<td>Doctor</td>
<td>Perak</td>
<td>Barely participating</td>
</tr>
<tr>
<td>Siti</td>
<td>Female</td>
<td>37</td>
<td>Arman’s Family</td>
<td>Teacher</td>
<td>Kedah</td>
<td>Barely participating</td>
</tr>
<tr>
<td>Salman</td>
<td>Male</td>
<td>24</td>
<td>Edy’s Family</td>
<td>Student</td>
<td>Kedah</td>
<td>Barely member</td>
</tr>
<tr>
<td>Farid</td>
<td>Male</td>
<td>27</td>
<td>Edy’s Family</td>
<td>Teacher</td>
<td>Sarawak</td>
<td>Barely member</td>
</tr>
</tbody>
</table>

Table 2. Demographic information and membership type information of informants

2.3.2 Procedure

Interviews were semi-structured and open-ended which lasted from 35 minutes to one hour, depending on the membership type. All interviews were audio recorded of which 5 interviews were conducted through mobile phone while the rest were interviewed in person. We used individual interviews as opportunities to address weaknesses of relying exclusively on the chat data and capture salient unsaid aspects of kinkeeper roles during interaction. In essence, the subject of kinkeeper was investigated by asking informants: Thinking about your family interaction using WhatsApp in the broadest terms, is
there currently any one person among your family who interacts more than others at keeping family in touch with one another? If yes, who was that person? What did she/he do to keep members in touch? Why did she/he start to do this? The participant who said “there was no such person” was further asked whether there has been one such person who holds that role out of the FCT context. All interviews were then transcribed and the transcripts were analysed using thematic analysis (Braun & Clarke 2006) to understand how the kinkeeper comes into picture in digital environment. The six steps involved in analysis were: 1) getting familiar with data, 2) generating initial codes, 3) searching for themes, 4) reviewing themes, 5) defining and giving names to themes, and finally 6) reporting the findings. Before reporting the findings, themes and categories from both phases were compared in order to uncover differences and similarities. As such the complete picture of kinkeeper role in digital environment was inferred from the resulting findings.

3 Findings

A number of themes that emerged from the data was highlighted, including the emergence of kinkeeper image through repetitive action; the style of digital kinkeeping through messaging that the social messaging system afforded, and the display of messages by kinkeeper as attempts of drawing in the wider family participation.

3.1 Recognizing kinkeeper position

From the total of 350 days of chat log, we recognized two participants who repetitively appeared as the first person to initiate family chat at the beginning of the day. Table 3 lists the six top participants who repetitively initiate contact, ordering based on increasing frequency of initial contacts.

<table>
<thead>
<tr>
<th>Name</th>
<th>Gender</th>
<th>Initial contacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anne</td>
<td>Female</td>
<td>89</td>
</tr>
<tr>
<td>Rose</td>
<td>Female</td>
<td>84</td>
</tr>
<tr>
<td>Jasmin</td>
<td>Female</td>
<td>53</td>
</tr>
<tr>
<td>Arman</td>
<td>Male</td>
<td>26</td>
</tr>
<tr>
<td>Mila</td>
<td>Female</td>
<td>19</td>
</tr>
<tr>
<td>Anita</td>
<td>Female</td>
<td>12</td>
</tr>
</tbody>
</table>

Table 3. The top six participants who repetitively initiate contact at the beginning of the day

For 89 out of the 350 days, Anne was always the one who initiated the first contact, followed by Rose with 84 days. These figures represent approximately 50% of initial contacts. Initial contact is defined as the first message post on a certain day by the kinkeeper to demonstrate their continuous efforts to warrant the ‘no silence’ state existed in the virtual group as phrased by these kinkeepers. This frequency of initial message posts further indicates their active participating behaviour (Sun et al. 2012). As Salman, who falls under the barely member category, confessed, “I feel bored when they do not appear”. In fact, all of the non-kinkeeper informants have also named them as their kinkeepers with exception to Jasmin. She included herself as another kinkeeper as her recent retirement provides ample time for interaction within virtual context. Her previous employment as a senior nurse with the highly dynamic working conditions at a large public hospital did not allow her to be active in the group even in her free time. “It will be fulfilled with doing house chores and replacing sleep that was already lost due to unusual working hour. I am happy when many others are taking part during chat”. This should be expected since her socialization to perform nurturing tasks as the eldest daughter in family has long been viewed as a cultural assignment with expectations for filial responsibility and attitude (Brody 1981; Sherman et al. 1988). With such claim and supported by the findings from Table 3, we found Jasmin was also the first person who made initial contacts for 53 days following Anne and Rose. This has placed her as the third kinkeeper within family virtual environment. We also found that, of these kinkeepers’ initial messages, there were four common observable strategies of how kinkeepers have crafted initial messages to drawing in participation at the beginning of the day as presented in Table 4.
Strategy | Media used | Example excerpts from chat log data
--- | --- | ---
Day opening greeting | Text, emoticon | *Assalamualaikum. Hurry up! Wake up! Good morning*
Reminding specific events | Text, emoticon, video clip | Today is Alesha’s birthday right? Happy birthday
Serendipitous sharing of situated occurrence | Photo, text, emoticon | [IMAGE OF BREAKFAST SET] We are having breakfast now, *nasi lemak* and coffee! [IMAGE OF FRUIT TREES AT THE YARD] Look, so many guava fruits around Aaron’s home …
Announcing atypical news/contents | Photo, text, emoticon, audio clip | Mum/Grandma isn’t well now, non-stop coughing, slightly asthmatic. Refused to go for check-up [SOUND OF COUGHING] To all family members, you are invited to a gathering party at Uncle Lee and Aunt Kinah’s home on this coming Friday. Please inform those who are not in this group.

Table 4. Four strategies of initial contact performed by kinkeepers

### 3.2 The modes of digital kinkeeping

The findings from both phases were consolidated into four modes of digital kinkeeping reflected as outcomes for family and kinkeepers: initiating contact continuously, record keeping, organizing future family events, and providing supporting information.

**Initiating contact continuously** demonstrates kinkeeper’s repetitive endeavours to bringing family together virtually as discussed in Section 3.1. Figure 2 (left) illustrates how kinkeepers have dedicated their time and invested creativity to maintain their chat group as a family digital dwelling.

Figure 2. Images of how kinkeepers and participating members together invested creativity (left), associated media to tangible object (middle), and referred high unread message count (herein 2,792 messages) as others’ frequent presence, with their own long absence of involvement (right)

Kinkeepers and a few other informants referred to their family WhatsApp group as *home* occupied with common tangible objects from the real world like food completed with human actors as shown in Figure 2 (middle). They even associated notification of incoming message (through sound) or unread message count (through badge mark next to chat group) as indicators of kinkeepers’ presence or visit to the home. Half of informants even suggested a large number of unread message count implies their long absence of involvement with family matters. Figure 2 (right) provides evidence for this occurrence. Anne has further emphasized that “through WhatsApp, I know they are ‘there’ especially when something comes up or needs to be told quickly. As you know, I live with my mum. So, I just ‘enter’ and post what I should say”. Kinkeeper also initiated contact to maintain continuity but does not expect reciprocity. For Rose, unreciprocated message was common when using WhatsApp as she did not
expect reciprocal conversation in every interaction, but this is different for Anne and Jasmin. They were slightly disappointed at times but not to the extent of quitting the role or uninstalling the application as Rose indicated: “this is the only way to reach them 24/7, all at once no matter where they are”. All the kinkeepers even mentioned that family virtual group survival was a by-product of their continuous participation and efforts. All non-kinkeeper informants speculated that kinkeepers’ position as full time housewives had provided them with ample time for constant demonstration of such family devotion.

**Record keeping** had been obviously carried out by kinkeepers through WhatsApp. Often they post messages by requesting particular information from others such as birth dates. Once obtained, the kinkeeper, Anne jotted down the list on a piece of paper and posted a captured photo of it in the group as shown in Figure 3 (left). Anne clarified that the list serves as a future reference allowing her to help others think about each other, for example: “the list of birth date will help me to wish birthday greeting for family member when the day arrives. Normally this will invite others to take part as well and I will always take a look at it by retrieving the photo from device storage during free time”. In another example as shown in Figure 3 (right), kinkeeper previously had thrown an idea of providing some kind of financial support through a play of family game. The game demanded Anne to remind game players about payment and who was the money collector at the end of every month. She used similar approach to remind and confirm with others by posting a photo of paper-based check list. Describing further how she helped her family in term of this financial support, this 48-year old woman laughed, “I can’t give them money because I don’t have any but through playing this game, at least those who are needy in specific month like having to pay for car road tax and insurance, together we will give the turn willingly”. This was highly appreciated by four other informants as they admitted that it was tedious and time-demanding commitment. Although Hairi was against on the record keeping idea as it had put obligation on him to respond, he admitted that it had triggered a ‘bonding touch’ for others particularly those far apart by providing a context to drawing in participation.

![Figure 3. Record keeping of family members’ birth dates (left) and monetary game play as a form of financial support initiated and managed by kinkeeper (right)](image)

**Organizing future family event** was another mode of digital kinkeeping performed by kinkeepers. They commonly performed initial planning and coordinating as illustrated in Figure 4 (left), and allocating tasks between households as depicted in Figure 4 (right). Commitment consideration has been figured in this pre-arrangement, according to Farid and Hairi who explained whether they will engage or not during discussion online since they live afar. Farid recalled: “If my family would be available around the event venue and time, I just slotted in during the chat and confirmed others about our attendance. In such way, we will make Aunt Anne and others happy”. Making other members particularly kinkeepers happy about their sudden involvement was reflected by Jasmine who voiced her longing to be a loving presence in the lives of younger generation: “I’m very happy when my nieces, nephews or in-laws join in during chat where I can show my love and care while making jokes or trying to be funny. These are the things that I can’t do with those seldom met even just using message, icon and pictures”. Indeed, these organizing and coordinating works through group chat are laden with strong feeling of affection and responsibility. Kinkeepers often defined their roles in terms of intangible –
support and love. Two kinkeepers admitted that they endlessly threw ideas in chat group for family gathering to avoid from the family drifts apart. Rose insisted that “lately, chat group is important for me to try to keep us together. Otherwise, everyone is at their own place doing their own things”.

Figure 4. A screenshot of how kinkeepers used textual messages with inclusion of emoticon to represent facial gestures while arranging and managing future event (left) and an image that captures a paper-based planner to coordinate future monthly gathering between households (right)

Providing supporting information by kinkeepers has emerged in response to the family’s need of clarification or enhancement on particular information. This mode of kinkeeping conforms the traditional role of kinkeeper in providing information (Leach & Braithwaite 1996) but in a sense that magnifies the kind of information needed by members. As Omar put it, “I often ask for more information about something that has been posted previously”. Figure 5 (right) illustrates supporting information in a form of an image of detail route to a wedding venue of which the physical invitation card was received by one kinkeeper and invitation had been announced in the preceding textual message as in Figure 5 (left).

Figure 5. A screenshot of a wedding invitation message posted by a kinkeeper (left) and a supporting information on a detailed route to wedding venue (right) to scaffold preceding message as requested by family member

As for Anne who resided with an 80-year old mother, she regularly shares additional information about their mother’s health and condition in the form of mother’s voices and photos to enhance the textual messages. Sometimes the intention of sharing such information was to specify that the ideas of gathering were conceived by the mother and not her. In this case, the kinkeeper mirrors Tee, Brush and Inkpen’s (2008) portrayal of a communication hub that provides others with frequent updates through FCT. Being aware of almost everything through WhatsApp, Siti observed that, “Anne or Rose or even Jasmin can accurately describe mother’s condition and also provide direct information not received by others using all functions in WhatsApp. They are the ones usually contacted by other relatives beyond the chat group”. Besides providing supporting information, kinkeepers perceived that this activity is important in FCT-mediated familial bonding although not significant as was mentioned by Anne: “the photo and message sometimes look meaningless but these are what hold the family together till now. This is how we use WhatsApp…at least, there is still a tie that binds us!”
4 Discussion

Digital kinkeeping does not equate actual performance of kinkeeping in physical space but transcends that space through the amalgamation of human acts and media manipulation, and presentation afforded by FCT. Indeed, does having a kinkeeper in the digital environment make a difference in family-technology interaction? Our findings highlighted a perpetual presence of kinkeepers were recognized through their repetitive appearance throughout interaction as to initiate contact to drawing in family participation. Kinkeepers have been fairly portrayed as permanent visitors to family chat group witnessing all doings of familial bonding of which kinkeeper’s absence may introduce boredom in virtual group. In this sense, current evidence has lent support to the association of kinkeeper role to prolong extended family-technology interaction. Consistent with previous findings, we find that women are the primary kinkeepers, but instead of thinking of a single kinkeeper, it may be better to consider splits in digital kinkeeping in which digital kinkeeping tasks are voluntarily shared by several female members. We postulate that by having more female kinkeepers, the virtual family group may be having more frequent interaction through FCT which accords to Spitze and Logan’s (1990) claim on more females in family leads to more contacts particularly when dealing with technology. Combining these insights, we argue that the technology replicates previous gender and role distribution in family digital environment. This marks an important point in our views on the sustainability of online relationship is partly a by-product of kinkeeper constant presence and performance during interaction. This particular quality of digital kinkeeping should be considered when designing FCT in which such persistence of kinkeeping may be trivialized with task-supporting design features such as integrating shared task list manager or calendar functions into messaging system. Such supports will maintain perseverance of family supportive interaction through extended use of FCT.

It is interesting to note that the kinkeepers highlighted displeasure during unreciprocated interaction. This seems to be consistent with what other HCI researchers have found, as for instance family members stopped sharing photos due to lack of feedback (Dalsgaard et al. 2007). However, the findings differ in kinkeeper’s reaction in a sense of kinkeeper still maintains participation and role as family keeper and thereby keep the chat group active. Here we suggest an FCT design consideration from the perspective of the kinkeepers, is for FCT to be designed with automatic appreciative feature. Perhaps through symbolizing kinkeeper efforts of initiating first contact for a particular day or creating event with some kind of appreciation token (e.g. flower or star icons to reward kinkeeping efforts) may compensate negative effects of unwanted feeling. As a consequence, the members of a virtual family group will be ranked according to the number of tokens. Such design recommendation can be visualized in the design of bulletin boards where members will be ranked accordingly to how much contact initiation has been made to drawing in family participation. Alternatively, perhaps the system should provide a “Like” button for messages as in the Facebook design. Some people do not have time to reply but an action of clicking Like button which does not require much effort is suggestively sufficient to maintain familial bonding (Brush et al. 2008). In this sense, automatic response initialized by FCT system or minimal response induced by other members may be aligned with kinkeeper action as advocated by the Social Exchange Theory (Thibaut & Kelly 1959).

Transferring the findings into HCI for IS, various questions might be raised in relation to the methodology and its relevance towards the IS field. In fact, researchers from this domain already explored the concept of ‘bonding’ or often termed as cohesion within small group study (Yang & Tang 2004) of which the focus was always centred on the technology and the process while marginalizing the people. Technology may be the enabler of particular social values but it is ultimately the people within the system or organization who have to use it, and take actions to maintain the practice. In this study, we have shown how family members appropriated social messaging system although we argue that any such practices and discussions of them are not necessarily exclusive to WhatsApp and family context. Indeed, it is postulated that WhatsApp shares certain similarities with other social network systems (e.g. Facebook) and collaborative technologies like group support systems (GSSs) as WhatsApp could be evolved towards some of the capabilities they can offer. This point ties into a broader understand-
ing on relationship-building which demands more “work” than it would seem through perpetual kinkeeping. In this regard, the kinkeeping concept is already echoed within organizational context who portrays the important of manager as a responsible person “to pay special attention to the development of group history and social relationships among members, which can provide additional means of reducing complexity” (Yoo & Alavi 2001, p. 385). The aforementioned kinkeeping tasks such as record keeping and organizing future event have been already automated and embedded as parts of most IS tools, but the technology needs a very close alignment with ‘someone’ to reach its maximum potential. It suggests that this kinkeeper-like character might play a bigger role in determining task outcomes than the mechanical features of the technology itself. For example, a previous work on GSS (Hayen et al. 2007) has revealed the need for a particular person in managing social issues that might surface in virtual encounter. One of them was a conflict due to anonymity in posting contents that allow members to post critical comments or even offensive, alienating, needlessly provocative, irrelevant, or otherwise out of line with the goals of the organization, which might stimulate other participants. In this sense, that particular person may respond to the conflict through empowerment perhaps via audio or video capabilities to augment the interaction. In the similar vein, such person may serve as a comment moderator to eliminate the problem of multiple comments submitted by one participant to provoke other participants. It is worth noting too, that by having the above kinkeeping mechanism in the interaction, a more humanized element is added into mediated relationship-building. As a result, employees or members feel more engaged with the organization as being parts of the whole system.

5 Limitation and Future Research

On accounts of limitation to the sample, this study has been conducted within researcher’s own family system that might raise a number of concerns that should be addressed appropriately. In fact, for being native or insider researcher, this study suffers from validity dilemma concerning on issues of subjectivity and role duality (Brannick & Coghlan 2007). It is recognized that insider researchers tend to assume too much during interviews and make assumptions based on their own experience, insights and knowledge of family or organizational dynamics. Therefore, this issue was addressed through employing pre-understanding knowledge such as using internal jargon and drawing on researcher’s innate experience in asking questions to probe a more subtle and significant data (Brannick & Coghlan 2007). As such, the researcher can participate freely without drawing attention to herself and have an opportunity to acquire understanding in use rather than reconstituted understanding (Adler & Adler 1987). Furthermore, the researcher was careful to avoid discussing her own opinions with family members throughout the research in order not to influence their responses. In terms of insider researcher’s role as both family member and researcher, it is important to identify and mitigate bias. It is worthwhile to note here that the insider researcher’s position as an affinal member to the participating family may slightly impact the informants’ honesty and thus quality of data. Most importantly, the position allowed her to remain distant from the ‘doing’ of family (Neustaedter et al. 2013). During the interviews, the insider researcher was more concerned with the building up of trust by assuring informants that they will not be identifiable in the report and on confidentiality of any information given. These are important since these factors may have a considerable impact on the depth of conversations with informants and honesty. Although this may still introduce some bias to the results, this study attempted to minimize the impact of biases through employing technique of member checking of analysis to assure that interpretations were supported. We also conducted informant validation by asking informants to review the reported information to check that it corresponds to their own subjective reality (Lincoln & Guba 1985). Apart from that, in many Asian cultures, most families exercise strong demands on the members not to disclose personal matters to outsider even internalized outsider like our researcher in this study. Disclosure of one’s personal condition and problem does not only reflect on the individual but also on the family organization (Talib 2010). Such disclosure is not easy for most Malaysians. Hence, by having voluntary informants who were willing to share their genuine and complete set of data, their contribution towards this study is very much valued. With this in mind, our data

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may not readily generalize to other family types or organizations, particularly from other cultures. Malaysians with a value of collectivism of which the people are more oriented towards relationship-based activity rather than task-oriented activity emphasize the importance of trust and relationship-building (Hofstede et al. 2010). Given the depicted scenario, the findings and conclusion drawn from the data might be implicated with the Asian accounts of kinkeeping mechanism.

Indeed, there are many opportunities for future research. We envision that organizational-keeping tends to become a juxtaposition of kinkeeping in the organizational setting. While this study was focused on the understanding of one of the important constructs of mediated family bonding, the approach could be sufficiently adaptable to understand how certain organization can make use of ‘digital kinkeeping’ mechanism to build rapport with their customers or employees via appropriate design (Benbasat 2010). Given that the manager might influence the ways members perceive and use technology, we suggest that the field should investigate more closely the mechanism of organizational-keeping practiced by managers within virtual context and the social psychological process involved surrounding it. Are women still bearing a share of the associated works in organizational context? This will be very interesting although it will not be surprising to see that perhaps much of the organizational-keeping in virtual environment has been assumed by women. In this sense, such inquiry might help researchers, practitioners, and designers to better understand how relationships could be sustained virtually hence improving the task outcomes in the long run particularly in increasingly distributed but prevalent digital environment. Other interesting avenues may be to expand current understanding by considering cross-cultural theory and replicating the approach in cross-cultural context. This will strengthen and provide extensive theoretical bases for current endeavours. One may extend the analysis presented here to reflect additional knowledge either in domestic or organizational settings that provides a useful account of different cultural metaphors on digital kinkeeping.

6 Conclusion

As families and organizations become accustomed to contemporary connecting technologies and start to expect immediacy and synchronicity for communication and coordination between members, the act of digital kinkeeping comes into play. There must be someone or perhaps more, particularly within the distributed extended family or organization in general, who is responsible for ensuring the continuity of such human-technology interaction. Initiating the contact constantly with no apparent reasons but for the sake of family or organization upkeep becomes awkward, demands efforts and might lead to non-reciprocal interaction. For example, sending text or picture messages might be ignored with no response, and when there is a need to plan for a gathering, there simply might be nobody who will put an interest on the idea. This kinkeeper role seems to pose another interesting design opportunity in addition to common focus of discussions on caregivers, grandparents or even managers in connecting technology design. Understanding this opportunity as well as how family or organization deal with kinkeeping act through technology in use at present not only provides a special lens into the broader scene of connecting people but may also guide researcher and designer to design better tools for family or organization particularly kinkeeper in pursuit of relationship-building. Social messaging systems such as WhatsApp should include a wider amalgam of design features if it is to cater prolonged interaction with continuous support of digital kinkeeping in maintaining such ties. This draws our attention from merely looking into family practices via WhatsApp but, towards attributing a sustainable practice to the digital bonding constructed in human-mediated communication.

References


