Respectful Disconnection: Understanding Long Distance Family Relationships in a South Korean Context

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ABSTRACT

We report upon the conduct and findings of an investigation into technology design for long-distance relationships (LDRs), where South Korean culture raises specific challenges. Through two qualitative studies we explore inter-generational LDRs from the perspective of South Korean students based in the United Kingdom. We identify and document the particular nuances within, and challenges that arise from, these relationships, before turning to the pragmatics of technology design for LDRs. Through both an extended diary study and interviews with students, we illustrate the impact of Korean familial obligations on intergenerational LDRs, and the mistrust and anxiety on both sides (parents and students) arising from limitations in communication channels. From our findings, we develop the notion of 'respectful disconnection' which we propose as a framework for designing interactions that appropriately support LDRs within this specific South Korean context.

Author Keywords

Intergenerational; Long-distance relationships; Connection; South Korean context.

ACM Classification Keywords

H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

INTRODUCTION

Long-distance relationships (LDRs) are an inevitable part of our globalized world. In the 21st century, it is not uncommon for members of a family to be dispersed across different countries, societies and time-zones. Nevertheless, LDRs still present challenges in maintaining and nurturing effective and sustainable relationships, due to physical barriers preventing effective sharing physical intimacy, the parties living in different time zones and geographical distance [7,11,31,35]. Even the most long-standing and enduring relationships can be strained and sometimes undermined when they transition to a long-distance format.

Digital technology has been long recognized to have the potential to help ameliorate these difficulties. There is a rich history of work in HCI that explores the ways we can use technology to support relationships over distance [e.g. 12,16,24,25]. This has predominantly focused upon overcoming physical absence and supporting intimacy between individuals through technology. More recently, design-led approaches have led to bespoke systems that look to support and build upon existing family routines [17].

This prior research has mostly occurred from the perspective of Western culture, which has a distinct set of societal values, practices and inter-generational relationships. In a traditional Eastern setting, the underlying mechanics of familial relationships are often markedly different: there is a cultural expectation of deference to senior members of the family, and a more focussed emphasis on achievement within narrowly defined societal goals. These factors are likely to have an influence on the dynamic of a long-distance (family) relationship, especially where one of the parties in that relationship has moved to (and is trying to integrate into) a westernised society, and is adjusting to that new environment whilst trying to retain existing relationships.

With a view of trying to understand this particular context for LDRs, we investigate the experiences of South Korean international students who have moved to the United Kingdom (UK), through two interrelated qualitative studies. The first case study was a month long, culturally-sensitive, diary study with four South Korean young adults to immerse ourselves in their daily lives and understand their lived experience together with the underlying mechanics of their relationships with their parents in South Korea. This case study was then followed by a further ten interviews, which were directly focussed upon exploring the design of technologies that could more effectively facilitate these LDRs in a more harmonious manner.

We present an extensive and nuanced account of the particular tensions that arise in this particular type of LDR. We found that these relationships were often undermined or damaged by a clash of cultural expectations. Technology was often avoided by both sets of participants as it was seen as a tool of surveillance rather than a way of developing and nurturing existing relationships. We then elucidate a new approach towards technology design in this specific context, called 'respectful disconnection'. This is intended to appropriately manage the specific set of cultural and pragmatic tensions that currently frustrate or undermine

existing relationships, and help to ensure the mental well-being of all parties by carefully mediating between often conflicting sets of expectations. As the challenges often arise from the Confucian background that South Korea shares with many Eastern countries, we also briefly reflect upon how this work could be of wider import in designing LDR systems in other similarly constituted societies.

BACKGROUND

LDR Technology Supporting Intimacy

The HCI community has primarily focussed upon providing *shared* interactions to support intimacy between two geographically-separated individuals. Neustaedter and Greenberg [26] investigated how couples use video chat systems to maintain their relationships over a significant geographical distance. They found that a video-oriented system offers new opportunities for couples to share their presence over the distance, with the use of voice and facial expressions providing a strong means for facilitating openness, although this was still limited by time differences, bandwidth of the Internet connection, and the lack of actual physical connection.

LDR studies have also explored how sensory interaction supports emotional sharing between couples. Cubble [19] is a hybrid communication system containing physical objects which are connected with the couples' mobile phones, and was designed to support emotional connection between couples using physical sensors (e.g. colour signal, vibration, and heat). It helps to share not only simple messages, but also emotions and presence over a long-distance, thereby demonstrating the positive value of sensory interaction to support LDRs. Motamedi's Keep in Touch [25], Samani et al.'s Kissenger [36], and Kontaris et al.'s Feelybean [18] are similar interactive systems which are designed to promote intimacy between couples by sharing physical interaction (e.g. tactile/visual sense and physical movement): this body of work shows that having more ways to communicate over long-distances enhances intimacy in LDRs.

Compared to distant romantic relationships, the studies that explore distant familial relationships emphasise supporting 'togetherness' through shared (interactive) experiences. One strand of this research by Yarosh and Gregory [47] examined the nature of the relationships between divorced parents and their children. It was found that the telephone was the foremost means of communication between children and their parents but this was fraught with challenges of keeping the child engaged in conversation. To address this challenge, Yarosh et al. [48] designed the ShareTable, which combined video chat with a shared tabletop space. A month-long deployment highlighted its value in supporting shared activities, emotional moments, and facilitating a sense of closeness through metaphorical touch. In a similar context, Follmer et al. [8] designed Video Play for long-distance families with young children so that they can play while video chatting. The game mechanic of Video Play supports open-ended play and collaboration between remote families,

thereby demonstrating the value of shared (but non-competitive) activities in maintaining existing relationships in this challenging setting. With respect to LDRs which involve an inter-generational gap between young children and their grandparents; the deployment and investigation of Story Play demonstrated the importance of playfulness [1], together with the fact that the children's inability to use such technologies can have the advantage of ensuring that their parents took part, bringing together three generations in one interaction.

LDR Technology Applying Concept of Slow Design

There are many LDR studies which look at the issue of communicating across time differences. King and Forlizzi [16] suggest that applying the concept of slow design [9] provides for a new way of communicating. They found that expending time and effort on communication may be more important than the degree to which they were connected. This approach is part of a new form of interaction called slow technology [12,28], that highlights the value of slowness and mental rest, and which could have wider benefits for the design of LDRs.

TimelyPresent [15] is a particularly relevant example because it is a LDR study within the Korean context. This study, however, did not address the concerns from the communication emerging from this particular cultural context. It is an interactive video messaging system that addresses asynchronous communication across time zones between the UK and South Korea. This system supports connection between three generations of a family over distance by sending a media gift timed to arrive at an appropriate time. The screen-based interactive system delays the delivery of messages so that families in different time zones can experience the illusion of living in the same time zone. Through this, Kim et. al. highlighted the power of asynchronous communication as a means to exchange meaningful presents in a distant family relationship. This LDR system was designed with consideration of sharing 'moments' as more important and valuable than just sharing the contents of the message. However, it requires significant effort from the sender, because they need to know about the recipient's schedule and have sufficient patience to deal with the delayed connection.

LDR Technology Highlighting Personal Importance

A number of interactive systems have been designed for reflection on personal relationships. Thieme et al. designed Lovers' box as a supportive tool to engage romantic partners to communicate reflection on their relationships [39]. Using Lover's Box, five couples exchanged video messages in an inquiry as to modes of expression using digital tools in romantic relationships. Thieme et al.'s findings emphasized the need to leave 'space' for users to negotiate meanings of personal media, and highlighted the opportunity to design for more indirect communication in such relationships. Wallace et al. also highlighted the value of reflection of personal importance in their design of a set of probes to explore

personal experiences and personhood of people who have dementia [42]. Their purposefully crafted probes mediated conversation between the designer, a person with dementia and her partner/carer. This highlighted the value of meaningful probes which can connect people to their own personal experiences and support reflection.

A recent innovation has been the use of bespoke, design-led approaches to LDR technologies, which reflect the fact that every relationship may have its own unique history, rituals, and routines. The work of Ritual Machines I and II [17] used cultural probes [10] to understand the lives of two families, where one member of each regularly travelled away for work. This occurred both at moments of separation and when they were together, exploring the technological opportunities to support their connectedness. Their design process highlighted personally meaningful activities, supporting connection through using these bespoke digital technologies. Similarly, Blossom [38,41] was designed to support a sense of connection between a woman and her grandmother, who had passed away previously. Unlike person-to-person relationships, Blossom makes a link between the woman and her family's land, UK and Cyprus. It helps her feel more connected to her grandmother and her life, through the medium of a blossoming flower, connected to a rain sensor buried in her family's land in Cyprus. These approaches all use a particular facet, or artefact, within a relationship in order to support its maintenance.

UNDERSTANDING LDRS IN THE SOUTH KOREAN CONTEXT

This research was designed to explore the challenges of *intergenerational* LDRs in a culturally sensitive manner within a South Korean context. These challenges are two-fold. First, we anticipated that (relative to Western intergenerational relationships), these relationships have a deferential character to them and thus the underlying experiences are likely to be particularly sensitive for our participants. Second, the participants are from South Korea and thus have different cultural practices around communication. In particular, our participants have a tendency to heavily rely upon the researcher's words and behaviour [21] which raises the risk of bias in respect of direct interviews, necessitating a more implicit approach. This research has therefore required a significant degree of adaptation of existing methods, to maximise the depth, accuracy and relevance of the findings which are to be drawn from this investigation.

We conducted two closely interrelated studies. The first was a longitudinal diary study ("the diary study"), where the 'diary' took the form of a carefully curated set of cultural probes (which were intended to be both ludic and empathic in nature) and was supplemented by regular interviews and discussions with the lead researcher. This was designed to elicit the nuances and mechanics of the LDRs, serving as a window into South Korean international students' lived

experiences of studying in the UK, separate from their family in South Korea and the associated challenges.

The second study ("the interview study") followed on from the first, drawing on the specific nuances and challenges identified to inform a more prospective discussion of technology design that might most appropriately underpin and support this form of LDR. As with the first study, there was an adaptation of existing methodology for the interviewee's better engagement, with the interviews being scaffolded by situation-specific cards derived from the analysis of the diary study [33,34]. This research was approved by the relevant University Ethics Committee, and participants were paid appropriate remuneration to compensate them for their time. To help ensure cultural sensitivity, the interviews were conducted by an English-speaking South Korean native speaker, and participants were offered the opportunity to conduct the interview in either Korean or English based on their own preferences. In the event, most communication took place in Korean, although participants often used expressions in English to better articulate certain experiences. Both studies were advertised using a combination of online advertising, word of mouth and snowball recruitment. This approach reflects the fact that international students tend to be connected through social communities [20,32], and the vast majority of South-Koreans in the United Kingdom are there as relatively short term taught students, according to the Korean Statistical Information Service (KOSIS). So participants could provide a full range of insights (including the ability to reflect upon how they had adapted to the difficulties of being in a LDR), there was a requirement that each participant had lived abroad (away from South Korea) for at least one year.

STUDY 1: THE DIARY STUDY

Participants: Diary Study
Four Korean taught students living and studying in the UK were recruited as participants for the study (see **Table 1**). Before being formally inducted into the study, the participants met with the interviewer to discuss how it would work (including the length of the commitment) and to answer any questions, as well as to obtain consent.

ID	Gender	Age	Time abroad (years)	Exit interview length (mins)
D1	Female	22	1	76
D2	Female	22	2	55
D3	Female	23	2	39
D4	Female	21	1	50

Table 1. Summary of participants in the 'diary study'.

Design and Overview: the Diary Study
This study primarily revolved around two components: the (i) diary exercise itself (which was supported by photography), and (ii) regular interviews (which were based primarily on the diary exercise). At an introductory meeting, the participants were asked to complete a handwritten diary daily about their experiences over the course of a 30-day

period, as well as to take photographs (at least one a day) using their smartphones. The researcher met (informally) with participants on a weekly basis, during which they would be invited to use a photo-printer to print off pictures that they found to be representative of their experiences, as well as to discuss their diary with the researcher. Participants also customised their diaries with the photos printed at these meetings. These meetings were primarily intended as a source of encouragement, as diary studies can require a considerable amount of motivation. The meetings were not audio recorded to help encourage participants to be fully open about their experiences and to underscore the informality of these meetings. Finally, the study concluded with a more formal exit interview.

The Diary Exercise

Diary studies are well known to be effective and efficient mechanisms for empathising with participants, as well as being a less intensive (and thus practical) method for collecting long-term field data [22,24]. However, they do have the limitation in that they require *"a level of participant commitment and dedication rarely required for other types of research studies"* [4]. The diary study design itself therefore contained many (culturally-appropriate) elements that were aimed at maintaining continual participant engagement; indeed, it was effectively designed as a cultural probe [10]. These included the use of a 'hand-made' diary (as opposed an 'off-the-shelf' construction), the provision of additional materials, such as stickers, coloured pens and pencils (the full set of materials is in **Figure 1**), the provision of family photos and other thematic elements, and the introduction of ludic elements (e.g. a calendar for self-managing their day-to-day work process and a wooden dreidel for providing a bit of time to think of their family).

The participants were asked to complete one entry per day for 30 days. Participants were informed that they did not need to focus solely on their relationships with their families. Rather, they could use the diary to document any of their
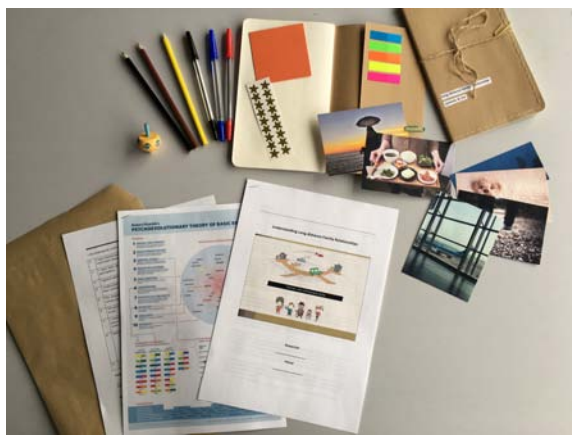
Figure 1. A package of diary study materials: the materials were provided with study descriptions at the first meeting for each participant.
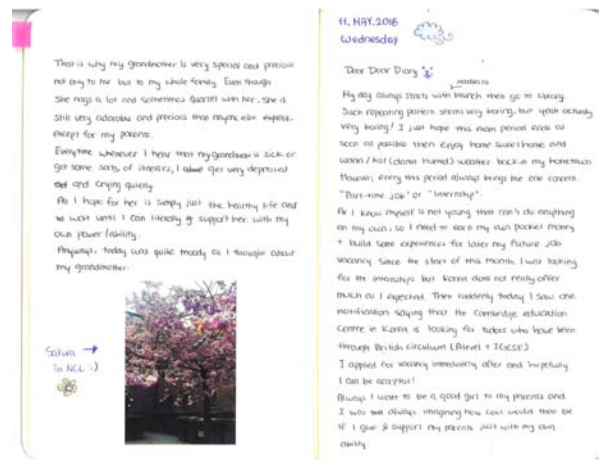
Figure 2. An example of diary note written by D1.

experiences of living and studying in the UK, so we could understand the unexpected connections between each experience [24]. They were also encouraged to share their experiences through a variety of ways, whether that was drawing, writing, or photography: this was intended to be a flexible and open-ended exercise (and also engaging), for follow up in the interviews and discussions that took place over the course of the study.

The diary study was supplemented by the use of photography, which is a common method for eliciting inspirational responses from participants [10]. The participants were asked to take at least one photo each day related to their day. During weekly meetings (discussed at greater length below), participants would select and print photos that would be added to the diary, using a Bluetooth photo printer provided by the researcher in a weekly informal interview. An example of a completed diary is provided in **Figure 2**.

The Interviews

There were weekly meetings throughout the diary study. These were intended to be informal opportunities to discuss and clarify the contents of the diaries themselves, as well as to help motivate diary completion. Every other week, the 'thought-bubble' exercise [40] was completed, which adapted the concept of cultural probe and designed to be conducted as 'homework' shared between the participants and their parents (**Figure 3**) as an informal way of helping both parties to think about their relationships. Through the exercise, we were able to make sense of the relational gaps between our participants and their parents.

The study concluded with a more formal exit interview, which was audio recorded. These exit interviews were conducted with each participant about two weeks after the diary study had concluded, allowing the interviewer to carefully review the existing documentary record to inform his questioning. The interviews were conducted in a semi-structured fashion to ensure a flexible, but focussed discussion, on the nature of LDRs in a South Korean context.
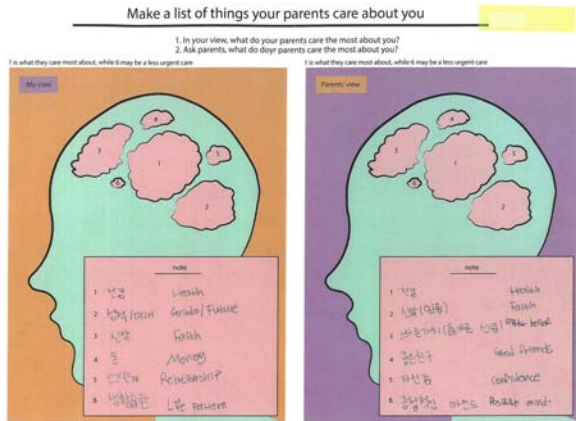
Figure 3. An image of D4's 'thought-bubble' exercise: the participants filled out a form with the things they anticipated their parents would say they cared about them (left) before asking their parents for their actual answers (right).

Data Analysis

The collected data, namely (i) the diaries, (ii) the researcher's informal notes on meetings whilst the diary study was in process, (iii) the photographs, (iv) the completed thought bubble diagrams, and (v) the transcript of the exit interviews, were examined in depth using thematic analysis [6,27]. Thematic analysis has the advantage of being a suitably flexible, but rigorous form of analysis that is broad enough to effectively capture the experiences and challenges faced by our participants. In line with the Data Protection Act (1998), the reports that follow (including the selection of images) were carefully chosen to protect the privacy of our participants, including from 'jigsaw identification'.

FINDINGS: THE DIARY STUDY

Living Up to Familial Aspirations

There was a strong familial expectation to succeed (especially academically) that pervaded the relationships between our participants and their family in South Korea. For example, D4 described her mother's sacrifice of her own aspirations in order that her children could be 'successful':

"When I was a child, I hated my mum as she gave up her own dream for her children, me and my brother. But even now, I cannot complain about her because I know she has been doing her best for us." (D4, Exit interview)

She felt gratitude for her mother's support in giving up on her own dream to support her children's studies, but also a sense of burden from it. Thus, D4 felt she had to be a 'good' child and studied hard to pay back her mother's sacrifice as a dutiful daughter. This manifested as a pressure she feels to ensure she achieves high grades and how she ties this to her mother's happiness:

"I should not live this way for the sake of my mum. She always says that she believes me and I am the only one in her life. I feel so sorry when I think of my mum and also feel pressure when she says like this." (28/04/16, D4's diary)

This can impact her desire to maintain a close connection to her mother and in turn, this can sometimes lead her to conceal how she feels. She noted in her diary:

"I, sometimes, want to cry in bosom of my mother but I can't.... I cannot because I should be a strong kid for her. I just want to say I am tired, but I will never say that to her. I do not want her to be disappointed at me." (28/04/16, D4's diary)

She also found that avoiding contact with her mother was helpful, which she inadvertently discovered when her internet connection suffered technical difficulties for an extended period of time:

"I couldn't call her for a long time because the Internet connection was really bad, but it was actually good for me not having a call with my mum." (19/05/16, D4's diary)

These types of tensions were also seen in other family relationships. D1, also expressed feeling pressured due to her parents' support in her education, which is a mixture of financial support, emotional support and sacrifice:

"My parents are paying for my school tuition, accommodation and monthly pocket money. The tuition fee is already more than my family's year expenses, but I am just keep spending all their money." (03/05/16, D1's diary)

Perhaps one of the most worrying aspects of this matter is that the parental expectations are not necessarily what their children think they are. After the thought-bubble exercises, D4 explained that her parents were concerned more about her wellbeing than academic achievements:

"I realised I did not know much about my parents. ... I thought my parents would care about my grades and money as the first priorities, but I was surprised that they did not even mention it. This made me surprised and, at the same time, happy." (D4's 3rd weekly meeting)

This suggests that the LDR has the effect of sometimes creating significant and upsetting misunderstandings in respect of parental expectations.

White Lies

The expectations of family members based in South Korea often create a significant tension between the parties to the LDR. An important way for managing this issue was effectively to tell 'white lies'; that is misleading their parents with the intention of masking problems or difficulties.

D1 decided to find a part-time job at a café to reduce the extent to which she was financially dependent on her parents. However, her father did not want her to do anything other than studying, so she kept it a secret from her parents:

"I cannot tell this because one thing that my parents hate me to do is working at either restaurants, café, or any service related jobs. Especially because I am in abroad for the study purpose." (07/05/16, D1's diary)

This indirectly brought about a conflict between D1 and her parents. Her father called her (through KakaoTalk; most popular instant messenger in South Korea [14]) when she was at work but she could not answer it because she was scared that her father would be upset. Yet, her father still became upset with her because he felt a loss of connection by not being able to speak with her. D1 expressed an

embarrassment about her parents wanting to share her private life with them:

"My mother asks me to send at least one photo per one day to them. So I am trying, but you know… this is not really easy." (D1, exit interview)

Her diary illustrates that it took quite a long time for her to reconcile with her father afterwards, and that it had made her very stressed:

"The first thing I have done at the moment I woke up is to check the group chat to see whether my dad replied me back or not, but yeah…sadly he didn't. I really feel like I made my dad so sad and disappointed him so badly." (16/05/16, D1's diary)

Even at the weekly meeting, she showed so much stress and frustration that she was crying as she talked about the conflict with her father. She felt guilty about what she had done for her parents made her parents sad.

In D2's diary, she noted that she does not want to disappoint her family:

"What I really really don't want to see is my family's disappointed face, so I should try my best until the end." (23/05/16, D2's diary)

As a result, she always focuses on sharing only positive moments, a joke, or a funny story so that they think everything is okay. When D2 is sick, she avoids telling them so that her parents are not worried. However, D2 wants her family's support and care and wishes that she did not have to mislead them:

"I feel pathetic about myself that I am just stuck in the sorrows and not going forward. I know I should not betray my parents' supports and expectation on me, but now I feel exhausted to handle all the pressure. I am so confused now. Confused [about] everything, my future, careers, dreams and reason for being here." (24/05/16, D2's diary)

Whilst this form of 'white lie' is very different to what D1 was hiding, it is perhaps more worrying, in that she feels unable to discuss her own life difficulties with her parents. D3 also conceals herself from the family and just waits for when it is all done. It looks unhealthy for her relationships as she noted in her diary:

"It's very hard and stressful being away from the family. I tended to bury my head in the sand and pretended like everything was okay. Maybe it wasn't the greatest tactic, but I believe this could end soon and I hope it will get better." (23/05/16, D3's diary)

Disconnecting

Unsurprisingly, given that these are all long-distance relationships, disconnection was an emergent theme from the analysis. Sometimes this can be *intentional*, as with the case of D4:

"My exam wasn't good, so I don't call my mom these days. I will be upset if she keeps asking me about the results and the score during the short phone call." (29/04/16, D4's diary)

By contrast, D2 talked about the *physical* disconnection with her family, which was particularly acute when there was a family gathering:

"When I talk to my family through Skype, it usually made me feel good, but today I felt really lonely when I saw my family staying

Figure 4. Picture of two buildings taken by D2.

all together without me over the screen. I strongly felt that I am the only one alone here. I was trying to hanging out with my friend to refresh my mood, but I even felt lonelier after." (11/05/16, D2's diary)

On that day, she took a picture of a building structure divided into two parts in a very dark night (**Figure 4**). D3 had a similar experience. She explained that she cannot join any family events in South Korea and she also cannot invite her family to the UK:

"One of the moments that I miss being at home is when I see other people going home for a weekend or when they host their family up here. None of my family has ever visited me here." (27/04/16, D3's diary)

In addition, she and her family have a totally different life pattern and there are not many experiences to share. D3's daily life is monotonous and unchanging as a student, so her conversation with her family becomes increasingly tedious.

"It's extremely hard to find something to talk about with the family when you don't have physical contacts." (D3, exit interview)

So, it is not just the geographical separation, but that combined with the nature of her day to day activities that generate a sense of disconnection. Because of this, she sometimes feels it is easier when she and her parents are separated:

"I have thought that I've better relationship with my mum when we are apart but that doesn't exactly mean that I don't miss her." (08/05/16, D3's diary)

D3 has also found that familial long-term relationships are particularly challenging, especially with respect to relationships with her older relatives:

"Another hard part of family long-distance relationship is the relationship with grandparents. We all know that their clocks are ticking, and sooner or later it won't be possible to meet them or talk to them again ever. But it is hard to keep in touch with them because a) they are not familiar with technologies so they cannot text or video call and b) they are not used to talking on the phone as well." (30/04/16, D3's diary)

The effect of disconnection was particularly tragic from D3's perspective. When she got news from her mother that her grandfather may pass away soon, it was impossible for her to

go home to see her grandfather before he passed away. She noted in her diary:

"I have been trying as hard as I can to stay unaffected, but it was really hard last night...and I am just trying to convince myself that it wouldn't have been possible to make it on time and I've made a right decision." (22/05/16, D3's diary)

The relational disconnection from her family really hurt her and seemed to be playing on her mind and ultimately gave her considerable regret:

"...rather than sadness, I will live with great regret in my life for nothing I could do for my grandfather." (22/05/16, D3's diary)

In effect, this is ultimately a failure of existing LDR technologies. A more effective means for engaging with older or infirm relatives might have softened the blow somewhat.

STUDY 2: THE INTERVIEW STUDY

Participants: Interview Study
We recruited 10 South Korean international students from across the UK as participants for this second study. None of these participants took part in Study 1 (**Table 2**).

ID	Gender	Age	Time abroad (years)	Interview Length (mins)
I1	Male	24	2	58
I2	Female	35	6	56
I3	Female	26	4	64
I4	Female	25	3	86
I5	Female	25	2	88
I6	Male	36	5	89
I7	Female	28	8	72
I8	Female	22	2	57
I9	Female	21	3	66
I10	Male	29	3	93

Table 2. Summary of participants in the 'interview study'.

Design: Interview Study
These were semi-structured interviews [3] based upon the 17 situation-specific cards developed in order to address the themes identified in the previous diary study. Each card was designed based upon the themes developing to illustrate 5 different emotional responses (i.e. longing, guilt, burden, loneliness and communicational difficulty), and those were made with a phrase selected from the diary study (e.g. "I feel guilty when I am not available to join the family event"). Each participant was asked to select as many cards as they wished at the beginning of the interview, and then the interview conversation was developed based on the cards they chose. Using the cards in the interview is advantageous to developing open-ended conversations while also meeting the interviews purpose of providing a flexible opportunity for our participants [33]. The 'card' was used as a tool to develop the interview conversation by the interviewee with a high level of engagement [13,34] and discuss issues that personally concern them [37].

Data Analysis
The approach we adopted was the same as with Study 1. However, the thematic analysis [6,27] was performed

independently because these two studies have different goals: with the second being a follow up from the first (i.e. the cards and questions were based on the diary study).

FINDINGS: THE INTERVIEW STUDY

Disinclination Towards Using Technology
While there is a variety of technology intended to support people in different types of LDR, the participants did not always find it useful in their relationships. One participant, I6, complained about the difficulty of expressing himself when speaking with his mother. This was attributed to his mother's inability to use technology. I6's mother is over 70 years old and is not familiar with smartphones, using the internet, or technology more generally. As a result, making an international phone call is the only way for him to contact his mother. In his interview, I6 described the difficulty of this:

"My mother really doesn't like using any types of technologies even though she wants to contact me. She says it is stressful and annoying for her. That is why I only can make a phone call to my mother."

In order to compensate for this situation, I6, drew upon his friends who remained in South Korea:

"Since my mother is alone in South Korea, she likes to have a guest and have some delicious food together. Sometimes I ask my friends to buy some food and visit my mother to make her happy. That will also be a chance for me to have video chat with my mother through my friend's phone. However, I know this is not easy for my friends."

The disinclination towards using technology can cut both ways. I2 decided to study abroad to avoid interference and control from her parents. She has been trying to live a new life in a new place away from her parents. However, due to how easily reachable she is through technology, she feels like she has not been able to put any distance between herself and her parents:

"I already obtained my Master's degree in South Korea, and I worked at a company for a few years. But I was thinking, 'this is not my life'. This was because my parents made all decisions for me. Even though I didn't like to do it, they pushed me to listen to them. Even when I felt like quitting my job, they didn't agree with me and forced me to continue my work, so I had to endure."

I2 does not like to contact her parents often, sending an occasional email instead of an instant message or phone call:

"Because whenever I contact them, our conversation ended up with some types of argument. Even now my parents keep saying me to do this or that, but I don't want to listen to them anymore. I think I need some space from them and I don't want to argue with them as well."

Existing methods of LDR fail to cater for this uncomfortable family dynamic. For similar reasons, I9 also prefers to avoid using LDR technology to contact her parents. She considers that the technology cannot be useful or make anything better in her situation. We could see I9's longing for her parents from the interview but also the driving reason why she is reluctant to use it:

"I miss my parents a lot. Especially when I am sick or tired. However, I am trying not to contact my parents because I don't want them to see my weakness. Just having a phone call or

sending a message doesn't really help me. It actually makes me lonelier."

Even though she does not get in touch with her parents often, she would show how much she thinks about her parents by planning a trip with them. She said,

"I am inviting my parents here and we will be traveling around together. They will love it, and I am really looking forward to seeing their smile as soon as possible."

Ultimately, in I9's case, technology has provided some small comfort, in that it has enabled her and her family to build and look forward to a shared aspiration of meeting in the UK. However, it is plainly no substitute for an in-person, face-to-face, relationship.

False Perceptions

A prominent theme from our findings was the concern that the South Koreans felt about the opinion of others. There was a concern from both parties to 'keep up appearances'. South Koreans in the UK worried about how their relatives at home perceived what they had been doing in the UK. This aligns with [29], which also found that people in a Collective culture, such as South Korea, are more conscious of other people. The students were worried about the expectations and the evaluations that their parents would receive from the people around them because they provided financial support for their children's study abroad. I5 noted that the fact she was being supported by her parents could be perceived negatively in her parents' social circle:

"I am sorry for my parents because I am studying here and it is much slower than others to manage life as an adult. Most of the children of my parents' friends have stable jobs and even got married, but I am still being supported by my parents. I am, to be honest, worried about how my parents will be seen by people around them."

In I4's case, she also considered her parents' social evaluation from others as an important motivation for her to study hard. She mentioned in her interview:

"My parents think that sending me to study abroad is a kind of investment. So I have to work hard on my study here for my parents. I have to succeed after graduation, so my parents can get a good evaluation from other people. This is sort of my tacit duty as a daughter."

In this cultural context, the student complained the limitations of technology could give rise to false perception from others. I7 sometimes uploads her photos on Facebook when she visits new places, but this means her friends in Korea think she just enjoys her life without any concerns:

"My friends don't really know how I live and what concerns I have, but they tend to judge my life from the photos I posted on my Facebook page. They think I am the one who just enjoy my life as traveling around which is not really true."

I9 talked about misunderstandings caused by text messages with her mother:

"Sometimes when I got a text from my mum, I feel bad and nervous as her sentences are so simple and dull, and she does not use any emoji. I feel like she may be mad at me. That's why I prefer to make video call and see my mum's face expression and voice tone."

Turning to the actual concerns of parents in South Korea, I4 had a tension with her mother because of her profile picture on KakaoTalk. The photo showed I4 drinking a soda through a straw. However, her mother was concerned that others would perceive her to be smoking. This resulted in her mother telling her:

"You should have more graceful and gentle looking as a graduated student. Change your profile picture."

Ultimately, I4 changed the photograph to avoid conflict but expressed frustration at having to carefully manage something so trivial as a profile photograph:

"I understand what she cares and why she asked me to change the photo, but it was stressful. How to be more graceful and gentle on my profile? I don't know what to do really, but I just changed the picture because I know my words won't make the situation better. It possibly would bring more nagging from my mum."

This considerable intrusion demonstrates the potentially negative effects of Korean societal expectations and a parental concern for 'keeping up with the Joneses' upon these LDRs.

Establishing New Family Rituals Around Communication

There is an 8- or 9-hour time difference between the UK and South Korea, depending on the time of year. Most participants felt that this time difference was a significant challenge, especially in terms of managing expectations from those relatives based in South Korea. I1 said in his interview:

"I often miss my parents' phone calls in the morning when I am in the class. If this happened continually, my parents will get worried a lot."

Moreover, it takes a long time, especially for the parents, to get used to when would be a good time for having a phone call with their children. I4 mentioned that during the first two months, her parents did not really care about I4's schedule and would call at any time, often when she was in class or sleeping. She said:

"This made it very difficult for both me and my parents."

Fortunately, as time went on, most participants and their parents began to understand each other's patterns of life and made their own rules to ensure better communication. I10 calls his parents every night at 11 o'clock in the UK, as this coincides with the time his parents start their day in Korea. Often these calls involve sharing a prayer together for a positive day. The connection between him and his parents is largely determined by him. This was because of his parents' limited aptitude for using information technology:

"I am the one who make contacts. My parents are not familiar with using any types of machine. I have taught them before how to use the smartphone, but as time goes, they easily forget it."

This is the new way his family communicate over distance. I3, similarly, developed new communication rituals with her family:

"Every morning on the weekend, both Saturday and Sunday, we do Skype. This is our routine. We just see and catch up with each other. We don't need any special reasons to do it ... We sometimes just turn on the Skype and put it there, and each of us just do whatever our daily routine is."

I5 expressed her satisfaction about her new rituals of communication with her parents. When she first arrived in the UK, she was not interested in contacting them to share each other's day and she and her parents called each other just for technical contact ignoring time differences:

"When I came here at first, I was busy adjusting to school, so I only had to contact my parents once or twice a week, and it was very short. I felt like I just call my parents to say I am still alive rather than talking to each other. So it was getting annoying for me to contact them."

As time moved on, she and her parents became more accustomed to each other's schedules and tried to have conversations at the right time for each other:

"I think there are some positives from having a time difference. We have to make an effort to contact each other by agreeing on a time. It means we can empathise with each other a bit more."

This made her communication with her parents more meaningful and fun because it became something more than just checking in on each other. It shows that carefully planning around the time difference should be supported to make a more positive LDR.

DISCUSSION

The Challenges with Existing LDR Technology

The contribution of this paper is a new vision for designing LDR technologies arising from the experiences of our participants and the needs of this participant group. From the accounts of our participants, this divides into the following specific concerns:

Protection from Unhealthy Communications: Dominance and Capability
In most cases, the existing technologies and digital services being used to facilitate LDRs were either of limited value or counterproductive to the maintenance of good relations between family members. We observed that South Korean students were pressured to be 'always connected' through such technologies by their parents. As a result, they make excuses to avoid the parents' calls or use other means of communication to introduce delays and undermine the 'liveness' of communication technologies that their parents preferred. A key challenge – whether perceived or actual – was that many of these relationships were markedly domineering in character. Often this was implicit, with a parental desire for intensive communications disrupting the routines and lives of their participants (as shown by D1 and D4's separate experiences). In many cases, technology often served as a form of surveillance and unwanted intrusion [2,30,44], rather than as a mode of providing support: in effect, the relationships became inherently disrespectful of the needs of each party. In this respect, students' perceptions of being remotely monitored by their parents led to behaviors that impacted on their local social relations. For example, in their self-presentation through social media channels, students were acutely aware of how any changes made would be perceived by family members in South Korea, with I4's experience of being forced to change her profile picture

being a particularly concerning instance of this. Accordingly, an LDR system in this context should be designed to help shield its participants (especially the students) from protracted intrusion.

Enabling 'White Lies' and Student Control
Given the distinctive cultural context, and the fact that many of our participants came to the UK to gain independence, it is inevitable that a degree of 'white lies' and misrepresentation underpin these relationships (e.g. D2, D3 and D4's separate experiences). This is especially true when one considers the often-contradictory expectations of the parties, with the younger generation wishing to be disconnected, whilst their parents often expected them to be constantly available for communication. Well intentioned dishonesty is part and parcel of the human right of freedom of expression and an integral part of relationship management: as the adage goes, *"Saints may always tell the truth, but for mortals living means lying"* [46]. As such, an integral part of respectful disconnection must be *designing for well-intentioned dishonesty* as this is the means through which existing participants have found helpful (although additional features would be beneficial as well, given the intellectual and emotional burden that can arise in maintaining 'white lies').

Designing for Temporal Management and 'Rituals'
It is evident from our study that the temporal management of relationships is crucial, not just because it could be a means for facilitating the necessary 'white lies' (e.g. moving communication from times where there is particular risk), but also because having regular and structured communication could in and of itself bring comfort (and certainty) to the parties of the LDR, such as I10's practice of having a general prayer with his parents. Whilst it is true that most participants ultimately fell into 'rhythms' and 'rituals', there was evident discomfort in many of these LDRs from the outset, as the parties got used to their new circumstances. This was a substantial and unsettling additional burden. The South Korean international students prefer to make contact with their families only at the agreed time as a respectful means of communication for them: in part this is for pragmatic reasons (which relate to their new life and time differences), but also this is due to the limited support (and even harm) from the lack of a 'feel at home' relationship, and sometimes, the lack of common topics to discussion, risking overly regular communication descending into monotony. However, these 'rituals' made it difficult to communicate freely, as they had to wait until late at night or the weekend to get in touch with the other (separated) party (consider the separate experiences of both D3 and I3). Existing technologies fail to include effective measures for temporal management, or perhaps even guidance that would enable a more effective negotiation of when the participants could be contacted (and when would be less appropriate). Future LDR systems for this context should take account of the *comfort that can arise from creating rhythms of communication,* and strongly emphasize this from the outset of the relationship.

Accessible Communication Technologies (Parents)
Our participants often described their parent's fear and mistrust of communication technologies: perhaps the most striking example of this was I6's use of his friends in Korea to overcome his mother's difficulties in this regard. This manifested in their parents' inabilities to communicate their feelings and concerns through existing digital communication channels, and their attempts to support their parents in this respect. In many cases, parents' limitations in using digital communication channels had a knock-on effect for the students, in that they themselves (the students) reduced the richness of expression in the accounts of their lives to their parents. This reciprocal throttling-back of communication also gave rise to deliberate acts of under-communication. For example, a number of participants reported how they used positive, but un-explicit, statements as to their personal wellbeing, when the realities were more complicated. Their awareness of their parents' inability to comfortably engage in complex discussions through voice and text communication technologies led them to avoid such topics through the telling of positively oriented 'half-truths' and 'white lies'. This leads to a requirement for *technological simplicity*.

Realising Respectful Disconnection
Respectful disconnection is therefore a curious mix of respect, well-intentioned dishonesty, mediation and temporal management. In some respects, these requirements might be contradictory, especially in respect of the combination of dishonesty and respect: the parties to the relationship have different viewpoints and needs. From a practical point of view, this suggests a range of features that are contrary to the existing design of LDR systems. An emphasis upon providing *uninterruptable space* would inevitably enable the Students to be shielded, but to achieve this, a system would need to be based on features that do not emphasize notifications (contrary to existing LDR's), but *instead focus upon pre-scheduled interactions*. Similarly, the shape of the relationships that are provided for would ideally *avoid an emphasis upon (live) conversations*, given that our participants often had unfortunate experiences arising from this, but instead place emphasis upon leveraging asynchronous non-verbal expression. As there were also significant difficulties in making this accessible in a broad sense, there is a need for intergenerational simplicity, adopting an approach wherein interaction abstractions that resolve differences in technology literacy. This would be a markedly different approach towards configuring an LDR technology.

Whilst elucidating these general features, we would also notice that the overall lesson might well be that these relationships need a bespoke approach that begins with these concerns as a starting point for designing systems or interventions. This would in line with design-led bespoke technologies [e.g. 17,33], which were discussed in our related work section. In effect, this work affirms a more bespoke and a less universalist approach towards LDRs. This

might not be a call for new technology, but rather new ways of using technology as part of a bespoke, human-driven intervention.

Confucianism, Family Relations and Further Work
One notable outcome of our studies was that many of our participants' experiences were driven by the latent Confucian values that underpin South Korean society. It was clear across the accounts of all our participants that the South Korean students have a strong sense of duty to pay back their parents for their support. Indeed, we found that the underlying motivation for studying abroad was not solely for progression and enrichment of the students themselves, but for the social standing of their families, especially their parents. Within a Confucian society, this is generally marked by a distinctive conception of the *self* and of relationships with others [5,23], in which human beings are considered to be fundamentally connected to each other. In such a culture, a 'good' person is expected to be strong and thoughtful, to put their own internal feelings or desires aside, and to act in a way that ensures harmonious social relations and the achievement of collective goals [43,45]. Our subjects accordingly had clear expectations that they must sacrifice their own individual desires to better serve the goals of their family group (as perceived by that group).

Many of the fears and expectations that drove relationships, especially deference to parental desires and aspirations, were foremost in the considerations of the students. However, it is worth noting that, due to the demographics of Korean student studying in the UK, there was a gender bias in our sample. Confucian traditions often have a gendered nature and so we cannot conclude decisively on how these should be addressed in design of LDR technologies for male students. We leave this as a matter for further work. We would also observe that Confucian values are not unique to South Korean society only, but are also prevalent in a range of other East Asian societies (e.g. China, Taiwan and Japan) [29,49,50]. So, design work in a wider Eastern setting could also benefit from being aware of such factors.

CONCLUSION
We have explored the experiences of South Korean young adults and the effect of them on LDRs. This exploration has identified that existing technologies and processes are insufficient or inappropriate in maintaining LDRs in this setting. To address this, we have developed the notion 'respectful disconnection', which is a mix of cultural respect, well-intentioned dishonesty, mediation and temporal management. It is hoped that the findings of this work will enable a more humane form of LDR going forwards.

REFERENCES
1.   Rafael Ballagas, Hayes Raffle, Janet Go, Glenda Revelle, Joseph Kaye, Morgan Ames, Hiroshi

Horii, Koichi Mori and Mirjana Spasojevic. 2010. Story Time for the 21st Century. *IEEE Pervasive Computing* 9, 3: 28–36. http://doi.org/10.1109/MPRV.2010.45

2. Eric Baumer and Phil Adams. 2013. Limiting, leaving, and (re) lapsing: an exploration of facebook non-use practices and experiences. *Chi 2013*: 3257–3266. http://doi.org/10.1145/2470654.2466446

3. Bruce L. Berg. 2004. Action Research. *Qualitative Research Methods for the Social Sciences*, 195–208.

4. Niall Bolger, Angelina Davis, and Eshkol Rafaeli. 2003. Diary Methods: Capturing Life as it is Lived. *Annual Review of Psychology* 54, 1: 579–616. http://doi.org/10.1146/annurev.psych.54.101601.145030

5. Michael Harris Bond and Herman Kahn. 1968. The Confucius Connection : From Cultural Roots. *ORGANIZATIONAL DYNAMIC* 16, 4: 5–21. http://doi.org/10.1016/0090-2616(88)90009-5

6. Virginia Braun and Victoria Clarke. 2006. Using thematic analysis in psychology. *Qualitative Research in Psychology* 3, 2: 77–101. http://doi.org/10.1191/1478088706qp063oa

7. Xiang Cao, Abigail Sellen, A. J. Bernheim Brush, David Kirk, Darren Edge, and Xianghua Ding. 2010. Understanding family communication across time zones. *Proceedings of the 2010 ACM conference on Computer supported cooperative work*, July 2016: 155–158. http://doi.org/10.1145/1718918.1718947

8. Sean Follmer, Hayes Raffle, and Janet Go. 2010. Video play: playful interactions in video conferencing for long-distance families with young children. *Proc. of CHI*: 3397–3402. http://doi.org/10.1145/1810543.1810550

9. Alastair Fuad-Luke. 2008. Slow Design. In *Design Dictionary*. Birkhäuser Basel, Basel, 361–363. http://doi.org/10.1007/978-3-7643-8140-0_251

10. William W. Gaver, Andrew Boucher, Sarah Pennington, and Brendan Walker. 2004. Cultural probes and the value of uncertainty. *interactions* 11, 5: 53. http://doi.org/10.1145/1015530.1015555

11. Gregory T. Guldner and Clifford H. Swensen. 1995. Time Spent Together and Relationship Quality: Long-Distance Relationships as a Test Case. *Journal of Social and Personal Relationships* 12, 2: 313–320. http://doi.org/10.1177/0265407595122010

12. Lars Hallnäs and Johan Redström. 2001. Slow

Technology – Designing for Reflection. *Personal and Ubiquitous Computing* 5, 3: 201–212. http://doi.org/10.1007/PL00000019

13. Rosalind Jones and Jennifer Rowley. 2012. Card-based game methods: exploring SME entrepreneurial marketing practice. *International Journal of Entrepreneurship and Small Business* 16, 4: 485. http://doi.org/10.1504/IJESB.2012.047614

14. Da-Jung Kim and Youn-Kyung Lim. 2015. Dwelling Places in KakaoTalk. In *Proceedings of the 18th ACM Conference on Computer Supported Cooperative Work & Social Computing - CSCW '15*, 775–784. http://doi.org/10.1145/2675133.2675198

15. H. Kim, A. Monk, G. Wood, M. Blythe, J. Wallace, and P. Olivier. 2013. TimelyPresent: Connecting families across continents. *International Journal of Human Computer Studies* 71, 10: 1003–1011. http://doi.org/10.1016/j.ijhcs.2013.05.001

16. S. King and J. Forlizzi. 2007. Slow messaging: intimate communication for couples living at a distance. *Proceedings of the 2007 conference on Designing*.

17. D.S. Kirk, D. Chatting, P. Yurman, and J.A. Bichard. 2016. Ritual Machines I & II: Making Technology at Home. *Proceedings of the 2016*. Retrieved September 14, 2016 from http://dl.acm.org/citation.cfm?id=2858424

18. Dimitrios Kontaris, Daniel Harrison, Evgenia-Eleni Patsoule, Susan Zhuang, and Annabel Slade. 2012. Feelybean: Communicating Touch over Distance. *Chi 2012*: 1273–1278. http://doi.org/10.1145/2212776.2212439

19. Robert Kowalski, Sebastian Loehmann, and Doris Hausen. 2013. cubble. In *Proceedings of the 7th International Conference on Tangible, Embedded and Embodied Interaction - TEI '13*, 201. http://doi.org/10.1145/2460625.2460656

20. Jee Sook Lee, Gary F. Koeske, and Esther Sales. 2004. Social support buffering of acculturative stress: A study of mental health symptoms among Korean international students. *International Journal of Intercultural Relations 28*, 399–414. http://doi.org/10.1016/j.ijintrel.2004.08.005

21. Jung Joo Lee and Kun Pyo Lee. 2009. Facilitating dynamic of focus group interviews in East Asia: Evidence and tools by cross-cultural study. *International Journal of Design* 3, 1: 17–28. http://doi.org/10.1080/15710880600900561

22. Gloria Mark and Bryan Semaan. 2009. Expanding a Country's Borders During War: The Internet War

Diary. *Proceeding of the 2009 international workshop on Intercultural collaboration*: 3–12. http://doi.org/10.1145/1499224.1499228

23. Hazel Rose Markus and Shinobu Kitayama. 1991. Culture and the self: Implications for cognition, emotion, and motivation. *Psychological Review* 98, 2: 224–253. http://doi.org/10.1037/0033-295X.98.2.224

24. Christine Milligan, Amanda Bingley, and Anthony Gatrell. 2005. Digging deep: Using diary techniques to explore the place of health and well-being amongst older people. *Social Science & Medicine* 61, 9: 1882–1892. http://doi.org/10.1016/j.socscimed.2005.04.002

25. Nima Motamedi. 2007. Keep in touch. In *Proceedings of the 1st international conference on Tangible and embedded interaction - TEI '07*, 21. http://doi.org/10.1145/1226969.1226974

26. Carman Neustaedter and Saul Greenberg. 2012. Intimacy in long-distance relationships over video chat. In *Proceedings of the 2012 ACM annual conference on Human Factors in Computing Systems - CHI '12*, 753. http://doi.org/10.1145/2207676.2207785

27. Jodi Nova Southeastern University. School of Social and Systemic Studies. 1990. *The qualitative report : an online journal dedicated to qualitative research since 1990.* Nova Southeastern University, School of Social and Systematic Studies.

28. William Odom and William. 2015. Understanding Long-Term Interactions with a Slow Technology. In *Proceedings of the 33rd Annual ACM Conference on Human Factors in Computing Systems - CHI '15*, 575–584. http://doi.org/10.1145/2702123.2702221

29. John G. Oetzel and Stella Ting-Toomey. 2003. Face Concerns in Interpersonal Conflict: A Cross-Cultural Empirical Test of the Face Negotiation Theory. *Communication Research 30*, 599–624. http://doi.org/10.1177/0093650203257841

30. Leysia Palen and Paul Dourish. 2003. Unpacking "privacy" for a networked world. In *Proceedings of the conference on Human factors in computing systems - CHI '03*, 129. http://doi.org/10.1145/642611.642635

31. M. C. Pistole, a. Roberts, and M. L. Chapman. 2010. Attachment, relationship maintenance, and stress in long distance and geographically close romantic relationships. *Journal of Social and Personal Relationships* 27, 4: 535–552. http://doi.org/10.1177/0265407510363427

32. Philip Poyrazli, Senel; Kavanaugh. 2004. Social Support and Demographic Correlates of Acculturative Stress in International Students. *Journal of College Counseling* 7, 1: 73–82. http://doi.org/10.1002/j.2161-1882.2004.tb00261.x

33. Jennifer Rowley. 2012. Conducting research interviews. *Management Research Review* 35, 3/4: 260–271. http://doi.org/10.1108/01409171211210154

34. Jennifer Rowley, Rosalind Jones, Magda Vassiliou, and Sonya Hanna. 2012. Using card-based games to enhance the value of semi-structured interviews. *International Journal of Market Research* 54, 1: 93. http://doi.org/10.2501/IJMR-54-1-093-110

35. E. M. Sahlstein. 2004. Relating at a distance: Negotiating being together and being apart in long-distance relationships. *Journal of Social and Personal Relationships* 21, 5: 689–710. http://doi.org/10.1177/0265407504046115

36. Hooman Aghaebrahimi Samani, Rahul Parsani, Lenis Tejada Rodriguez, Elham Saadatian, Kumudu Harshadeva Dissanayake, and Adrian David Cheok. 2012. Kissenger. In *Proceedings of the Designing Interactive Systems Conference on - DIS '12*, 48. http://doi.org/10.1145/2317956.2317965

37. Kathleen J Sternberg, Michael E. Lamb, Phillip W. Esplin, Yael Orbach, and Irit Hershkowitz. 2002. Using a structure interview protocol to improve the quality of investigative interviews. In *Memory and suggestibility in the forensic interview*. 409–436.

38. Anja Thieme, Jayne Wallace, Thomas D. Meyer, and Patrick Olivier. 2015. Designing for Mental Wellbeing : Towards a More Holistic Approach in the Treatment and Prevention of Mental Illness. *BritishHCI'15*: 1–10. http://doi.org/10.1145/2783446.2783586

39. Anja Thieme, Jayne Wallace, James Thomas, Ko Le Chen, Nicole Kramer, and Patrick Olivier. 2011. Lovers' box: Designing for reflection within romantic relationships. *International Journal of Human Computer Studies* 69, 5: 283–297. http://doi.org/10.1016/j.ijhcs.2010.12.006

40. Patrick Thonhauser, Selver Softic, and Martin Ebner. 2012. Thought Bubbles. In *Proceedings of the 12th International Conference on Knowledge Management and Knowledge Technologies - i-KNOW '12*, 1. http://doi.org/10.1145/2362456.2362496

41. J. Wallace. 2007. Emotionally charged: A practice-centred enquiry of digital jewellery and personal emotional significance (Order No. 10701136). Available from ProQuest Dissertations & Theses A&I. (1969111725).

42. Jayne Wallace, Peter C. Wright, John McCarthy, David Philip Green, James Thomas, and Patrick Olivier. 2013. A design-led inquiry into personhood in dementia. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems - CHI '13*, 2617. http://doi.org/10.1145/2470654.2481363

43. A. F. Wessen, Max Weber, and Hans H. Gerth. 1951. The Religion of China: Confucianism and Taoism. *American Sociological Review 16*, 890. http://doi.org/10.2307/2087534

44. Pamela Wisniewski, Heather Lipford, and David Wilson. 2012. Fighting for My Space: Coping Mechanisms for SNS Boundary Regulation. *Proceedings of the 2012 ACM annual conference on Human Factors in Computing Systems - CHI '12*: 609. http://doi.org/10.1145/2207676.2207761

45. Nancy Y. Wong and Aaron C. Ahuvia. 1998. Personal taste and family face: Luxury consumption in Confucian and Western societies. *Psychology and Marketing* 15, 5: 423–441. http://doi.org/10.1002/(SICI)1520-6793(199808)15:5<423::AID-MAR2>3.0.CO;2-9

46. R. George Wright. 2011. *Lying and Freedom of Speech*. *Utah Law Review* 2011 (3), 1131-1160.

47. Svetlana Yarosh and G. D. Abowd. 2011. Mediated parent-child contact in work-separated families. *29th Annual CHI Conference on Human Factors in Computing Systems, CHI 2011*: 1185–1194. http://doi.org/10.1145/1978942.1979120

48. Svetlana Yarosh, Anthony Tang, Sanika Mokashi, and Gregory D. Abowd. 2013. "almost touching." In *Proceedings of the 2013 conference on Computer supported cooperative work - CSCW '13*, 181. http://doi.org/10.1145/2441776.2441798

49. June Ock Yum. 1988. The impact of Confucianism on interpersonal relationships and communication patterns in east Asia. *Communication Monographs* 55, 4: 374–388. http://doi.org/10.1080/03637758809376178

50. Rui Zhou, Zhonghe Wen, Muchao Tang, and Betsy DiSalvo. 2017. Navigating Media Use. In *Proceedings of the 2017 Conference on Designing Interactive Systems - DIS '17*, 1025–1037. http://doi.org/10.1145/3064663.3064701