Beyond the Screen: 
Creating Unconventional Artifacts to Support Long-Distance Relationships

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ABSTRACT
Long-distance romantic relationships have become prevalent in today’s globalized world. Although mainstream communication technologies have provided instant, cheap, and convenient channels for people to communicate at a distance, the emphasis of these technologies is placed on functionality as they are designed for a large variety of end users, rather than providing emotional communication which the author argues is meaningful and necessary for the individuals to maintain ties to their romantic partners who are forced to live physically apart for some reason. The author envisions that there is a gap between understanding the users’ needs in research and designing technologies for them in practice. The author’s PhD research has been dedicated to bridging this gap by mediating emotional communication for serious long-distance romantic relationships through unconventional artefacts. This manuscript presents an overview of the work thus far.

KEYWORDS
Design, Emotional Communication, Human-Computer Interaction, Long-Distance Relationships, Long-Distance Romantic Relationships, Unconventional User Interfaces, User Study

INTRODUCTION
Long-distance relationships (LDRs) are becoming more common than ever before, and the number of LDRs continues to increase as an enormous number of individuals live apart from their loved ones due to educational demands, career pursuits, military duty, emigration and such circumstances (Aylor, 2003; Stafford, 2004). These reasons for separation have formed three main types of LDRs, i.e. long-distance friendships, long-distance family relationships, and long-distance romantic relationships which can be further categorized as casually dating, seriously dating, engagement or married. Despite that the phenomenon of LDRs has become prevalent, the discourse of LDRs remains relatively understudied compared to the research around geographically close relationships. One of the reasons is believed to be that frequent face-to-face communication, geographic proximity and shared meanings are assumed to be relational necessities while LDRs challenge those traditional and cultural assumptions (Stafford, 2004). There is no doubt that LDRs come with inevitable challenges posed by geographic proximity. However, Jiang and Hancock (2013) argue that LDRs can equal or even exceed the relationship satisfaction and trust that occur in geographically close relationships.

Nowadays, there are various communication channels available for people to interact with their loved one at a distance, such as phone call, video chat, texting, instant messaging, e-mail, and social networking. The majority of people who are in LDRs relying on those low cost and ubiquity of computer-mediated communication (CMC) tools to fulfill relatedness – i.e. love, closeness, intimacy,
belonging and togetherness – one of the fundamental psychological needs for human well-being (Alderfer, 1972; Andersen, Chen, & Carter, 2000; Deci & Ryan 2008). However, it has been found out that most available technologies focus on the transmission of explicit information, which neglects the emotional and subtle communication needed for close relationships (Hassenzahl Heidecker, Eckoldt, Diefenbach, & Hillmann, 2012).

Having acknowledged this gap, there has been a growing interest in developing different types of solutions aimed at mediating emotional communication for LDRs in the field of HCI. The use of wearable technologies (Tsotsersokou & Nevariouskaya, 2010), ambient media (Kim, Park, & Nam, 2015), biosignals (Werner, Wettach, & Horneck, 2008), haptic sensations (Singhal, Neustaedter, Antle, & Matkin, 2017), hybrid interactions (Kowalski, Loehmann, & Hausen, 2013), etc. are widely employed to create a relatedness experience for LDRs. Nevertheless, the focus has been put on technology-based experience to mimic the ability to see, listen to, smell and touch each other at a distance, which might make the users feel overloaded by technologies, as lifeless machines and standardized tools may fail to build an emotional connection needed in LDR context (Li, 2018). As a result, there appears to be a gap between understanding the users’ needs in research and designing technologies for them in practice. To address this gap, this research has been dedicated to applying design thinking to investigate how intensive technologies can be redesigned and humanized to mediate emotional communication for remote couples. The focus is on couples who are in serious LDRs, i.e. engaged couples, married couples, or couples who have established a committed romantic relationship for a substantial amount of time, as opposed to casually dating.

SYSTEMATIC LITERATURE REVIEW

There are a number of CMC technologies which have been proposed by HCI researchers to support LDRs. Hassenzahl and his colleagues (2012) have presented a literature review of 143 published artifacts which aimed to mediate a feeling of relatedness for LDRs. Their literature review focused on relevant artefacts that use interaction solutions beyond explicit verbal communication and simple emoticons published in the Association for Computing Machinery Digital Library (ACM DL) until end of 2009. As technologies have been greatly advanced since then, we continued from their literature review ending to 2009, and analyzed relevant systems with unconventional user interfaces (UIs) that use interaction solutions beyond conventional mobile phone, PC and social media use published in ACM DL between the years 2010 and September 2017 (Li, Hääkkilä, & Väänänen, 2018). The literature review conducted by Hassenzahl and his colleagues (2012) focused on identifying the strategies that used in the artefacts for mediating relatedness in LDRs and also long-distance family relationships, whereas our systematic literature review analyzed the characteristics of the relevant communication devices with unconventional UIs for mediating emotional communication, particularly focusing on the use case of facilitating LDRs.

Our systematic literature review was built on the search terms that were used in Hassenzahl and his colleagues’ literature review (2012), i.e. romantic, emotional communication, remote presence, presence-in-absence, romantic communication, intimate communication; and then we complemented the search with long-distance relationship and communication of emotions, which supported our focus on computer-mediated emotional communication in LDRs. We searched the keywords in database fields ‘abstract’ or (Boolean OR) ‘author keyword’. In total, we reviewed a body of 150 papers resulting from the search criteria, further manual analysis scoping the body to 47 papers, containing altogether 52 prototypes that were relevant for our focus. For those papers presenting multiple devices, each communication system was analyzed separately. We developed a codebook which consisted the following main attributes for the analysis: form factors, interaction types, nature of messages and strategies for expressing relatedness.

Table 1 briefly summarized the analysis of the reviewed studies’ design attributes, their dominant types and examples, which gives a comprehensive overview of the HCI research on different emotional
Online Trust and Health Information Websites
Cynthia L. Corritore, Susan Wiedenbeck, Beverly Kracher and Robert P. Marble
www.igi-global.com/article/online-trust-health-information-websites/70764?camid=4v1a

Global Teacher Training Based on a Multiple Perspective Assessment: A
Knowledge Building Community for Future Assistant Language Teachers
Yuri Nishihori, Chizuko Kushima, Yuichi Yamamoto, Haruhiko Sato and Satoko Sugie
www.igi-global.com/chapter/global-teacher-training-based-multiple/73591?camid=4v1a