Understanding Teleconsultation through Different Perspectives

Deepti Aggarwal

Microsoft Centre for Social NUI

The University of Melbourne

Parkville, Victoria 3010, Australia

daggarwal@student.unimelb.edu.au

Bernd Ploderer

Microsoft Centre for Social NUI

The University of Melbourne

Parkville, Victoria 3010, Australia
ploderer@unimelb.edu.au

Frank Vetere

Microsoft Centre for Social NUI
The University of Melbourne
Parkville, Victoria 3010, Australia
f.vetere@unimelb.edu.au

Abstract

Despite the several benefits that teleconsultation offers, its commercial acceptance has been relatively low. Through this work, we would like to contribute to a conceptual understanding of the needs and experiences of various people involved in a teleconsultation session, which we believe will open up new possibilities to design future technology for teleconsultations. As a starting point, we present three theoretical perspectives of understanding the user experience, communicative asymmetries, and proxemics of the setup, to understand the context of teleconsultation. At the workshop, we would like to invite discussions around the same topics.

Author Keywords

Teleconsultation; clinician-patient communication; user experience; communication asymmetries; proxemics.

Introduction

Teleconsultation refers to the electronic communication that happens between a clinician and patient for the purpose of diagnostic or therapeutic advice [10]. It involves sharing of textual data, scans, documents and photographs to get information related to patient's health. For patients, teleconsultation enables easy and convenient access to health services for people living in rural/remote areas or having disabilities. Additionally,

teleconsultation can save time and transportation costs by enabling access to health services directly from home. For clinicians, teleconsultation provides an opportunity to expand their care and knowledge beyond the four walls of their hospital. However, despite these benefits, people seem to have skeptical opinions about its acceptance as a medium for healthcare delivery [7].

Teleconsultation has been investigated in terms of technical feasibility, cost-effectiveness, clinical outcomes, and impact on clinician-patient relationship through quantitative analysis such as pre and post intervention survey [4,8,9]. For example, technical feasibility is majorly discussed in terms of issues like connecting to wireless connection or having a bad video quality; It is also essential to investigate what information was not communicated and what was its impact on the overall communication. Additionally, the focus so far remained on exploring the possible health concerns that can be consulted via audio or video technology [7] with an assumption that if the given technology worked for supporting one health intervention, it will work for other health domains as well; which may not be true always. For example, a high resolution video conference is required for telepsychiatry that can capture real time responses and reactions (such as body language, and expressions) of a patient; whereas for the diagnostic purpose, an average quality video would suffice if supported with rich sensing monitors [3]. Understanding teleconsultation through HCI perspective has, thus, remained the biggest interest in the telehealth community [4].

During a teleconsultation, as the patient and clinician are not in the same room, it is understandable that there will be ongoing concerns regarding the clinician - patient communication. However, these concerns can be minimized with the exploration of new mediums and technology to support the clinician-patient communication during a teleconsultation, providing a near best experience to face-to-face consultation. In this position paper, we discuss three perspectives to understand the user perspective in teleconsultation settings. We believe that these perspectives will provide a holistic understanding of teleconsultations to further design interactive technologies. At the workshop, we anticipate discussions along the similar topics.

Understanding the user experience
User experience (UX) refers to the experience of users of technology. UX is defined as a subjective, situated and dynamic encounter of a person with a product, system or service [2]. User's experience with a product will depend on his motivation to achieve specific goals with the product and how he anticipates its usage and later how it fulfills his expectations. Additionally, previous encounters with similar systems, past memories, expertise abilities and other preferences, also influence his opinion about a system. Evaluating UX is helpful in designing technology that could bring pleasurable experiences while supporting the user strengths.

With respect to teleconsultation systems, there exists little knowledge on how the users experience their interaction with and through teleconsultation systems [4] and how the features of underlying technology can be improved to increase the system usability. For instance, while using the given teleconsultation system, it is essential to find out the satisfaction and confidence

of a patient in conveying his issues to the clinicians [1]. With this work, we aim to understand the UX of teleconsultations by gathering a rich set of such as sequences of actions, physical environment, ergonomic, usability, and interaction between users and products including the personal aspects of the users such as comfort, issues, and satisfaction with the product.

Understanding the communicative asymmetries

Communicative asymmetries can be defined as the unequal distribution or usage of different communicative resources by different ends that influence the course of events [6]. For instance, in medical environment, clinicians and patients follow pre-established roles that define their activities and participation in the communication. Such communicative asymmetries are essential to understand its consequences on the design of technology to support communication.

In the context of teleconsultation, we found some references to communicative asymmetries in the existing literature. For instance, Miller [9] found that the involvement of a third person such as technician to facilitate the consultation reduces the patient participation, making him utter less, asking fewest questions, and thus communicating lesser information to the clinician. However, these findings are mostly limited to the asymmetries in the verbal communication between clinicians and patients with no insights on the asymmetries in the use of technology placed in the context.

With this research, we aim to investigate the asymmetries in the use of technology as a communication medium. For example, we will understand how multiple screens having different information are arranged at patient and clinician ends; and which screen is more important at which end. Additionally, we also aim to understand how people take spontaneous turns to show their agreement or disagreement during the communication; and how the technology allows or inhibits such an aspect of conversation. For instance, what happens if a carer, not in the video frame, adds some information about the medical issues of the patient; how her information was communicated; did someone reposition the technology to bring carer in the frame.

Understanding the role of proxemics

Proxemics is described as the use of personal space by people in order to mediate social interactions with other users, technology and other artifacts in the surrounding [5]. Studying the human behavior in physical space and investigating their spatial relationship is essential to understand how to situate technology in the context and how to weave embodied interactions within the device.

To the best of our knowledge, proxemics in teleconsultation settings has not been investigated as of now, which we believe is essential to design interactive technology for teleconsultations. Proxemics in teleconsultation setting includes understanding of several parameters such as technical setup, physical arrangement of the space, positioning of different users, types of communication during consultation (e.g., non-verbal cues), movement of users during consultation, orientation and body language of different users that influence the communication between a patient and clinician.

Research aims and Approach

This research aims to understand the current practices of teleconsultation in order to identify challenges and opportunities for improving the quality of teleconsultation through interactive technology. This research will take a user experience perspective to gain a holistic understanding of the various users of teleconsultation technology, their interactions with and through teleconsultation systems, and their feelings in doing so. By focusing on the user experience, this research will contribute to the knowledge regarding the use and capabilities of existing technology to support teleconsultations.

To achieve so, we will utilize qualitative approach where we will observe the natural environment of teleconsultation and later on interview the participants to get their subjective view about teleconsultation. Participants for this study will be all the individuals present in a teleconsultation session, which includes patients in residential aged care facilities, their carers, clinicians, clinicians' assistants, and other IT support staff. Findings of the study will contribute to a better understanding of the needs and experiences of various people involved in a teleconsultation.

Conclusion

In this paper, we discussed three different theoretical perspectives to understand the user perspective in teleconsultation settings. While there are other challenges and opportunities that need to be addressed, we believe that the insights gained from this study will mark an initial step to design interactive technology aiming to enhance the user experiences of teleconsultation systems.

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