Interpersonal Connectedness: Conceptualization and Directions for a Measurement Instrument

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Abstract

Interpersonal connectedness is the sense of belonging based on the appraisal of having sufficient close social contacts. This feeling is regarded as one of the major outcomes of successful (mediated) social interaction and as such an important construct for HCI. However, the exact nature of this feeling, how to achieve it, and how to assess it remain unexplored to date. In the current paper we start with the theoretical conceptualization of this phenomenon by exploring its basic origins in psychological literature and simultaneously formulate requirements for a measurement instrument to be developed in the service of exploring and testing CMC applications, in particular awareness technologies.

Keywords

Awareness systems, belonging, connectedness, measurement

ACM Classification Keywords

J.4 Social and Behavioral Sciences- Psychology; H.4.3 Communications Applications; H.5.2 User Interfaces – evaluation/methodology; General Terms: Theory, Measurement

Introduction

Computer mediated communication (CMC) tools, such as email, instant messaging, media spaces and awareness systems are very popular and becoming increasingly more so. We propose that an important explanation for the popularity of CMC lies in people's pervasive and fundamental need to belong [1].

Communication technology affords mediated interactions, which has broadened our communication horizon significantly. Moreover, our changing lifestyles, including families dispersing over larger areas, elderly living alone, and increased business travel, further underline the need for effective mediated communication. However, there are severe doubts as to whether mediated communication can afford the same affective characteristics as face-to-face communication. It appears that the majority of communication media has been developed with a focus on effectively transmitting the content aspects of communication, but these have not been optimized to also communicate the more affective, interpersonal connectedness oriented signals. Exploratory research findings indicate that awareness systems, a special class of CMC, are indeed capable of enhancing one's sense of connectedness [5]. Yet the concept of interpersonal connectedness[1] has hitherto remained relatively unexplored.

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[1] Social presence [2], more commonly discussed in literature on mediated communication applications, differs from interpersonal connectedness: whereas social presence is primarily a direct perceptual experience during contacts, interpersonal connectedness is a more enduring, affective appraisal which is only indirectly influenced by the actual moment of a contact.

Up to now, design of awareness technology and related research in the Human Computer Interaction (HCI) domain has often been based on an intuitive sense of what interpersonal connectedness is. However, considering its potential importance for understanding and comparing the use of CMC tools and their effects, more fundamental insight in the phenomenon of interpersonal connectedness is needed. In addition, the field needs measures of interpersonal connectedness, to make possible empirical study of the effects of different CMC applications and their critical characteristics. Knowledge resulting from this provides input for optimizing the design of CMC applications, such as awareness systems.

The current paper is based on a literature review that was performed as a first step in the process of developing a theoretical conceptualization of interpersonal connectedness and corroborating measurement instruments. First it discusses and narrows down the concept of interpersonal connectedness, which is defined as a form of belonging. Subsequently it discusses constructs that are related to interpersonal connectedness and proposes directions for the development of measures of interpersonal connectedness.

Interpersonal connectedness

Interpersonal connectedness is essentially the experience of belonging [4]. Extensive evidence is available that testifies to the importance of belonging for human well-being. Indeed, Maslow [7] placed the importance of belonging behind only safety needs and basic physiological needs (e.g., air, water). Similarly, Baumeister and Leary [1] argue in their belongingness hypothesis that 'human beings have a pervasive drive

to form and maintain at least a minimum quantity of lasting, positive, and significant interpersonal relationships.' As a result, relationships emerge quite naturally and people invest a great deal of time and effort in establishing and maintaining supportive relationships with others.

Belongingness and loneliness should be regarded as two sides of the same coin. Experiencing belongingness can be viewed as the positive counterpart of experiencing of loneliness on a "loneliness versus belongingness" dimension [4]. Loneliness can be conceptualized as an emotional response to a discrepancy between desired and achieved levels of social contact. It has been suggested that loneliness is a particular kind of sadness that is due to dissatisfaction with the level of social contact or intimacy in one's life, just as disappointment is a form of sadness that occurs when reality fails to live up to one's expectations [13]. Taking emotion theory [3] as the starting point, loneliness involves both appraisals and affective experiences. Appraisals pertain to perceptions of isolation as a life condition ("I have no one to talk to", "the people around me seem distant"), whereas affective experiences can be viewed as feelings of loneliness ("I feel abandoned", "I feel lonely") [15].

People experience belonging when their need to belong is satiated [1, 8]. We propose that the sense of belonging is grounded in appraisal processes regarding one's inclusionary status in relevant social groups (e.g., being part of a family or close group of friends). From the fact that these appraisals can be made irrespective of whether one is actually communicating at the time it follows that interpersonal connectedness can exist outside of actual ongoing communication with close others: it does not necessarily disappear after a contact is ended, but may linger on in the background more or less permanently. This implies that the sense of belonging is a diffuse, ongoing feeling.

Connected to whom?

Feelings of interpersonal connectedness can be felt toward a specific individual, such as a romantic partner, a family member, a close friend, an acquaintance, or even a stranger with whom we have an interaction. Yet we conceptualize interpersonal connectedness as pertaining to the sense of belonging one feels toward one's social network as a whole. Interpersonal connectedness is therefore the resultant of all one's "belongingness appraisals" toward all social contacts one has. We suggest however that a strong positive interpersonal connectedness predominantly arises within the context of close relationships with reciprocal concern for each other and mutual understanding [1].

The experience of belongingness/loneliness is based on the degree of satisfaction with one's social connections. The appraisal processes regarding the experience of belongingness and loneliness involve the satisfaction of both of two criteria: the quantitative aspect of having enough social contacts (network satisfaction) and the qualitative aspect of experiencing a sufficient degree of closeness in one's relationships. Network satisfaction consists of two aspects: satisfaction with the size of one's social network and satisfaction with the amount of interactions one has with members of this network [1, 13]. The amount of social interaction or network satisfaction is important, but in itself not sufficient for achieving a full sense of belonging. The degree of closeness or intimacy also plays a central role in

experiencing a sense of belonging. This implies that one's interactions must take place in the context of affective concern for each other's welfare. Close or intimate relationships are more likely to satisfy closeness needs, while social relationships are more likely to fulfill network satisfaction needs.

In line with this, loneliness can be conceptualized as consisting of an emotional and a social component [16]. Whereas social loneliness involves inadequate social networks, emotional loneliness stems from the absence of an intimate attachment relationship. Interpersonal connectedness is also related to the concept of social support, which is defined as the availability of people on whom we can rely and who let us know that they care about, value and love us [11]. Social support is based on the perception that one can turn to a sufficient number of others in times of need and the satisfaction with the available support.

We now define interpersonal connectedness as the sense of belonging based on the appraisal of having sufficient close social contacts.

The temporal experience of interpersonal connectedness

The temporal dimension is a key aspect for understanding and studying the phenomenon of belongingness/loneliness. When researchers use loneliness scales without a time reference, they are bound to identify some people who are experiencing transient loneliness because of life circumstances and others whose loneliness is chronic. Chronic loneliness refers to the fact that a person has been lonely for a long time. Transient loneliness, which can be viewed as

an affective state, fluctuates with life conditions [11, 12].

Interpersonal connectedness refers to a continuous experience of whether one meets affiliation and belongingness needs. In a sense, it is a continuous sequence of belongingness experiences. As people's social network tends to be stable, people's sense of connectedness should be relatively stable. However, at the same time interpersonal connectedness can fluctuate based on the current assessment of one's status of belonging, influenced by the appraisal of current events that are relevant for experiencing belongingness [6]. We therefore assume that a single interaction with a particular person can have a temporary influence on interpersonal connectedness, which can linger on for a while.

Measuring interpersonal connectedness

To our best knowledge, a measure of interpersonal connectedness is currently not available. However, existing measurement instruments of related concepts serve well to inspire its development. For this purpose, we reviewed relevant literature and constructs related to interpersonal connectedness. In this section we mention and briefly discuss two such constructs[2] and discuss further directions for an interpersonal connectedness scale. Based on our conceptualization of interpersonal connectedness, the measure needs to have a number of characteristics:

1. It captures the affective experience of belonging.

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[2] Unfortunately, space does not allow a discussion of the full set of measurements reviewed in the current paper. These will be reported in an EU project deliverable.

2. It is based on appraisals regarding the size of one's network, the number of interactions and the closeness of bonds.
3. It pertains to one's total social network, yet should be sensitive enough to pick up changes in interpersonal connectedness induced by events involving specific individuals
4. It is sensitive to changes over time, and should be able to capture both momentary connectedness and interpersonal connectedness that extends over a larger time frame.

Sensitivity with regard to the temporal dimension is especially important in the context of media effect studies in order to be able to study the effects of the use of CMC tools on interpersonal connectedness. The construct should be able to capture both momentary interpersonal connectedness and interpersonal connectedness that extends over a larger time frame.

Loneliness scales capture both the quantity and quality of one's social contacts, making them relevant for the interpersonal connectedness concept. The UCLA Loneliness Scale (ULS) [9, 10] is the most commonly used self-report instrument to measure loneliness. It contains items such as: "I feel alone" and "There are people I feel close to". Some items from the ULS seem suited to assess the concept of interpersonal connectedness, although adjustments are needed. For instance, items in the ULS seem to be framed in a long-term time perspective and therefore probably measure chronic loneliness [12]. The time frame of relevant items of the ULS may be changed or the instruction for the questionnaire may be adapted in a way that fits the construct of interpersonal connectedness.

The Affective Benefits and Costs of communication Questionnaire (ABC-Q) [14] was designed to assess the affective benefits and costs of communication, as they arise from using an awareness system or any other communication medium, in the context of social and emotional communication. The ABC-Q includes a number of relevant items for our concept of interpersonal connectedness. These items would need to be adapted by removing all references to "contacts" and "medium" from the items. This allows the measurement of interpersonal connectedness without explicitly linking it to the use of a particular CMC tool. Examples of items in a scale of interpersonal connectedness are: "At this moment I feel connected to others.", "At this moment I feel lonely." and "At this moment I feel close to others.".

Conclusion

We define interpersonal connectedness as the sense of belonging based on the appraisal of having sufficient close social contacts. We furthermore conceptualized interpersonal connectedness as referring to one's satisfaction with the quality and quantity of one's entire social network, and as a phenomenon that is fairly stable, but can fluctuate from moment to moment.

From our review we conclude that a scale to measure interpersonal connectedness is not yet readily available, but several adapted items from a number of scales, such as the UCLA Loneliness Scale and the ABC-Q, seem suited to be part of a self-report measure of interpersonal connectedness. Based on these and other measures, a new set of items has been developed and is currently tested for reliability, sensitivity, and validity.

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