



# The Distance between Us: Using Construal Level Theory to Understand Interpersonal Distance in a Digital Age

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Several authors have shown how communication using digital devices influences the experience of psychological distance. For instance, the hyperaccessibility associated with mobile phones reduces the felt distance between people who are separated by geographical space (Cummings et al., 2001; Sommer, 2002; Turkle, 2006; Katz and Byrne, 2013). This paper discusses how interpersonal distance, i.e., the perception of separation in space and time that people sense between themselves and others who are significant to them, is influenced by digital communication. It also explores the psychological mechanisms that can explain this influence. This work draws inspiration from construal level theory (Trope and Liberman, 2010), as well as specific studies that have explored psychological distance in specific situations, e.g., in virtual work groups (Wilson et al., 2013) and real-time streaming video situations (Lim et al., 2012). Our contention is that construal level theory can be applied to understand the effect of digital communication on a broad range of human relationships.

**Keywords:** construal level, psychological distance, digitalization, digital communication

Trope and Liberman (2010) define psychological distance as the “subjective experience that something is close or far away from the self, here, and now.” Although psychological distance can be experienced as the byproduct of various “objective” forms of distance, notably in space or time, psychological and objective distance do not have a direct relationship (Wilson et al., 2013). Someone or something far away in space and/or time may well *feel* closer to me than someone or something that is nearer. For instance, a mother grieving the death of her son on a battlefield halfway around the world may still feel closer to him years after his death than she does to the next-door neighbor.

The term psychological distance may refer to the experienced distance to people, events, or objects. The subject of the current paper is the perceived closeness or separation between an individual and others who are significant to that individual in the present, for example, the distance to a relative who lives far away. We choose to label this *interpersonal distance*. The question we want to address is this: How can perceived interpersonal distance as affected by digital communication be understood in terms of construal level theory?

Construal level theory, developed by Trope and Liberman (2010), has captured the interest of social psychology researchers in recent years. This framework has already been used to describe the effects of digital communication on particular aspects of human interaction; e.g., persuasion (Katz and Byrne, 2013), social media (Lim et al., 2012), and communication in work teams (Wilson et al., 2013). The contribution that we seek to make here is to apply the aspects of construal level theory to the effects of digital communication upon interpersonal distance upon a broader range of human interaction.

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## PROPERTIES OF DIGITAL COMMUNICATION THAT MAY AFFECT INTERPERSONAL DISTANCE

A large number of studies within psychology and other social sciences have described how increased use of digital communication affects interpersonal communication patterns, and some have addressed how it affects interpersonal distance. The following are some selected examples of such studies.

Katz and Byrne (2013) pointed to some essential aspects of the use of mobile telephones. They claimed a conceptual connection between the use of digital communication and psychological distance. They isolated four essential aspects of the connection: *interactivity*, the possibility of integrating a mobile telephone into daily life; *simultaneity*, the possibility of instantaneous interaction; and *memory*, since the device can store and recall information, it serves as a person's "second memory." Their study sought to show how the use of mobile telephones affects interactions where one person is seeking to *persuade* another. The aspects they described, however, are also relevant for understanding how mobile phones and other digital devices affect interpersonal distance, since much human communication now takes place through these devices.

Turkle (2006) pointed to the *chronic digital availability* of the modern human being. People seem to be attached to the gratification offered by their "online self," a self that is continually present by means of "always-on/always-on-us" communication devices. Turkle referred to this as the "tethered self." One way in which this tethered self may influence interpersonal distance is through so-called *continual copresence*, being perpetually "tuned in" and open to the possibility of communicating with a large number of different persons in one's life (Turkle, 2006). For instance, even in the middle of business meetings, one may be available to answer a telephone call from a family member. Continual copresence often interrupts face-to-face conversations. The tethered self often ignores those who are physically present in favor of a priority response to a call or an e-mail. The tethered self can easily be psychologically absent even though it is physically present. Another person who is physically present and trying to interact with the tethered self may have difficulty distinguishing whether or not she has that person's full or even partial attention. All of us have had the sense that someone we are with is psychologically elsewhere.

These examples suggest that some aspects of digital communication affect interpersonal distance, but the specific psychological mechanisms involved have rarely been addressed by those researching digital communication. For this reason, we seek to examine a psychological framework within which the influence of digital communication in interpersonal distance may be comprehended.

## CONSTRUAL LEVEL THEORY: A THEORY OF PSYCHOLOGICAL DISTANCE

Psychological research on construal level theory has identified a number of variables that influence psychological distance

(Lieberman et al., 2007; Trope and Liberman, 2010). An object, event or person is perceived to be psychologically distant to the extent that they are "not present in the direct experience of reality" (Lieberman et al., 2007, p. 353). There are four main reasons why a person, event, or object may be alienated from my direct and present experience of reality: their significance belongs to another time (past or future); their significance is remote in space (they are far away or from far away); their significance is perceived as belonging to someone else; or their significance is perceived as merely hypothetical. Liberman et al. refer to these as the four dimensions of psychological distance: temporal distance, spatial distance, social distance, and hypotheticality/probability.

The basic assumption of construal level theory is that humans tend to think in concrete ways about objects and events close to them, and in abstract ways about objects and events perceived as distant. A construal refers to a mental representation formed by the individual. The degree of concreteness or abstractness in which the person represents the object or event is referred to as "level of construal." As the psychological distance of an object increases, it is represented by increasingly higher levels of construal (Trope and Liberman, 2010). High-level construals are "relatively abstract, coherent, and superordinate mental representations, compared with low-level construals." For instance, a holiday in the distant future, to a location that is not yet determined, is represented in terms of more global/general features (e.g., "It will be relaxing and nice") than a holiday to a specified location and that is approaching soon, which is represented in terms of more specific features (e.g., "I will have to pack my bikini"). The authors hypothesize that this has to do with higher-level construals being more stable across distance and time. The relationship between psychological distance and construal level goes both ways: an increase in perceived distance leads to activation of higher-order construals, and activation of higher-order construals leads to increased perceived distance (Lieberman et al., 2007). Trope and Liberman (2010) present a number of examples illustrating this direct relationship.

Importantly, the four dimensions of distance are interrelated (Maglio et al., 2013). For instance, when a description of an event is written in formal language (indicating social distance), the event thus described will be expected to occur further in the future (temporal distance) and farther away (spatial distance). Trope and Liberman (2010) hypothesize that the association of the different distance dimensions is automatic and effortless in people's minds.

We now turn to some examples of how construal level theory has been applied to understand psychological distance within specific situations of digital communication.

## APPLICATION OF CONSTRUAL LEVEL THEORY TO A SPECIFIC DIGITAL COMMUNICATION CONTEXT: SOME EXAMPLES

Wilson et al. (2013) presented a theoretical analysis of how the perception of psychological distance among members of work teams separated by geographic distance can be understood by

applying construal level theory. They offered predictions regarding the effects of objective geographical distance on psychological distance in this kind of work setting, and how this psychological distance in turn will affect group processes. They hypothesized that construal level may predict (a) whether the group views itself as heterogeneous or homogeneous, (b) whether a given group member is viewed as part of the “in crowd” or as on the margins of the group, (c) whether an individual’s negative actions are perceived by the group as being inherent to that person’s character or excused on the basis of how they were feeling that day, and (d) whether the perceptions that group members have of each other are inflexible or adaptable. Most relevant for our study, Wilson et al. (2013) also indicated aspects of communication in this type of setting that can weaken the usually direct relationship between objective and psychological distance. For example, they suggested that team members who only communicate electronically and never physically meet, may initially “visualize” one another by prototypical/high-level construal. Ongoing communication, however, may lead to the development of more low-level, specific construals, which in turn necessarily indicate a reduction of psychological distance and a higher level of trust. They indicated that one’s choice of communication affects the degree to which psychological distance is overcome. The choice of a “lower-bandwidth” medium when a “higher-bandwidth” option is possible, e.g., e-mailing instead of using the telephone, may result in higher-level construal and greater psychological distance. They also argued that whether an individual tends toward high-level construals or toward low-level construals will help determine if this person is suited for participation in geographically dispersed work teams.

Lim et al. (2012) specifically addressed psychological distance within interaction in a social media-enhanced real-time streaming video service. One of their aims was to identify characteristics that affected perceived psychological distance in this context. Psychological distance was assessed by a self-report questionnaire. They found that psychological distance was reduced if the context was constructed as a meaningful place (referred to as “inhabited space”) and if participants could perform activities that produced similar results as in the real world (referred to as “isomorph effects”). The design and predictions were derived from construal level theory.

Katz and Byrne (2013) used construal level theory for understanding how digitalization affects cognition and behavior, and especially for describing the parameters that influence the effectiveness of persuasive messages delivered through mobile devices. They made a series of propositions for the factors that influence the effectiveness of persuasive messages in a digital context, and how these relate to construal level.

## THE NEED FOR A BROADER EMPHASIS

The studies referred earlier (Lim et al., 2012; Katz and Byrne, 2013; Wilson et al., 2013) make significant contributions to research on the relationship between digital communication and interpersonal distance, demonstrating that construal level theory offers a useful framework for understanding this relationship. Because the papers deal narrowly with digital communication in

specific contexts, however, their conclusions do not necessarily apply to digital communication among people in general.

Despite the good beginning made in these studies, there is an obvious need for a theoretical framework that incorporates the results of the previous studies and goes on to explain how digital communication influences perception of interpersonal psychological distance more broadly. The question addressed in our study is this: how can construal level theory be used to explain and how the various types of digital communication<sup>1</sup> affect interpersonal distance? We center our discussion around four hypotheses:

Hypothesis 1: with digital communication, the four forms of distance will more often dissociate.

Hypothesis 2: the use of digital communication may sometimes reduce interpersonal distance.

Hypothesis 3: the use of digital communication may sometimes increase interpersonal distance.

Hypothesis 4: the individual who uses digital communication may be able to set a desired level of interpersonal distance with an ease that would have been unimaginable even 25 years ago.

## HYPOTHESIS 1: WITH DIGITAL COMMUNICATION, THE 4 FORMS OF DISTANCE WILL MORE OFTEN DISSOCIATE

A central assumption in construal level theory is that when people infer distance from construal level, estimates for different forms of distance normally go together. Events that are rare in our experience will be represented by high-level construals, and we will expect them to occur at remote locations and in the distant future. This is why people who have undergone the experience of a natural disaster will say, “I never thought that this would happen to us here and in my lifetime.” This tendency may have evolved because in the physical world, things that are far away in one dimension will most often be equally removed from oneself in other dimensions too. However, with the advent of “online presence” the four dimensions of distance are no longer in tandem when it comes to the experience of distance between people. Different combinations of temporal, physical, and social distances are now possible. For instance, even though a department colleague may be physically located in the same building, one may communicate with that person by means of a formal e-mail to which no immediate or personal reply is necessary, indicating that despite physical proximity there is social distance. On the same day, one might communicate informally *via* Skype

<sup>1</sup>Digital communication as used in this article covers a range of devices, services, and applications that began to be widely used only in the mid 1990s with the development of the WorldWideWeb and reasonably-priced services that put mobile phones into the hands of the public at large. In more or less chronological sequence the different digital communication tools might be summarized as: online chat, mobile phone conversations, e-mail, text messaging (SMS), the use of social media (Facebook, Twitter, etc), and online video conversations and conferences (Skype). It is not within the scope of this article to analyze the specific effects of each “digital communication instrument” upon interpersonal distance, though some examples we offer might assist in initiating such an analysis.

with a “closer” collaborator who lives on a different continent. Here, social distance and geographical distance are no longer related – one’s geographically proximal colleague will be mentally represented by higher-order construals, while the geographically distant colleague on Skype will be mentally represented by lower-level construals.

When dimensions of “objective” distance differ from each other, how will the experience of psychological distance be affected? According to Trope and Liberman (2010), “(...) the construal-based inference that an object is distant on any given dimension will be augmented when the object is known to be proximal on another dimension.” (p. 449). They used the following example: even though the scheduled appointment with a friend is still several months distant in time and will take place in another country, that meeting may be represented in one’s mind in terms of detailed, low-level construal because one knows the friend well and has had similar appointments in the past. Here, the low-level construal is held despite the temporal distance from the event. In this situation, one may attribute the detailed construal to the closeness of the relationship with the friend, which reduces the distance in its social and hypotheticality dimensions, and thus reduces psychological distance. In this and in our first e-mail and Skype examples, the “close relationship” overcomes the “objective” temporal and spatial distances by means of a dissociation between those dimensions and the equally “objective” dimensions of social and hypotheticality distance.

We should note here that the experience of a dissociation between “objective” and psychological distance is not new. In previous generations, the long distance phone service, audio recordings, telegraph, postal system, writing of books, and even Bronze-Age notes on bits of broken pottery could reduce the perceived distance between people. However, one senses that the high degree of interactivity and simultaneity offered by digital communication have brought about a revolution not only in communication but also in human relationships, which are further demonstrated in our discussion. To minimize the significance of this revolution would be like trying to say that steamships, automobiles, and airplanes were only incremental improvements in the age-old use of sailboats, oxcarts, and balloons in the realm of human transportation.

## HYPOTHESIS 2: THE USE OF DIGITAL COMMUNICATION MAY SOMETIMES REDUCE INTERPERSONAL DISTANCE

As pointed out by Turkle (2006) what it means to be “present” is no longer self-evident in an era where interpersonal communication increasingly takes place *via* digital channels. A teenager in attendance at a family gathering who is chatting with a friend on his smartphone will probably represent that friend mentally by lower-level construals than he will use to mentally represent the family members who are physically present. As in our previous examples, despite the dissociation between spatial distance and low-level construal, the use of digital media decreases the perceived distance to the friend while actually increasing the

perceived distance to those present at the family gathering. This agrees with Trope and Liberman (2010) claim that this kind of dissociation can produce an experience of greater rather than less distance. They stated: “when inferring distance from construal, adjusting the inference of distance on one dimension for distance on other dimensions may result in a negative relationship among those distances” (ibid., p. 449). An important question for future research is to identify the variables that determine the outcome in situations like these.

Turkle (2006) argued that people may and often do use digital communication to express and validate feelings. That they can do so demonstrates that perceived psychological distance is low and that through this media they have achieved continual copresence. Digital or online communication enables people to immediately communicate their feelings and thoughts to another person at the moment they occur. Because the feelings can be immediately shared, the result may be a felt need to have those feelings immediately validated by the other person. Text messages with emoticons provide such immediate and non-verbal validations. This felt need and the satisfaction of that need, if even in a superficial and extremely brief text message, is the basis for Turkle’s argument that for many people today, a sense of intimacy may more easily be achieved in a virtual world where the other person is physically absent, than in a face-to-face encounter. The possibility of immediate response to an offered message, indeed the expectation that such a response is necessary, can be referred to as *simultaneity* (Katz and Byrne, 2013).

A consequence that follows from a sense of continual copresence and an altered sense of intimacy is a *changed self-view*. As one observes one’s own life as played out on one’s communication devices, it is as though one is seeing oneself from a third person perspective, managing one’s self-image, constructing an ever-evolving electronic version of oneself (Me, version 1.0; me, version 2.0; etc.).

Exposure to online environments/social networks increases a person’s awareness of places one could have been, activities one could have engaged in, and people one could be connected to. In other words, the hypotheticality dimension of psychological distance is affected dramatically. This can be understood in terms of construal level theory (Turkle, 2006). Through social networks, people are continually updated on the activities and whereabouts of a large number of people, and the amount of detail is often significant. This means that these activities, people, and places may be mentally represented at a low level of construal. The result is that the perceived distance is low, and remains low. This may not always be a good thing, since the result may be a chronic fatigue caused by the feeling of perpetual potential accessibility brought on by continual copresence.

Please note that technological advances in communication previous to the digital age also had an effect on the experience of psychological distance. One is impressed, for instance, in reading Victorian novels, by the large role that regular postal service had in maintaining intimacy over distance. The continual copresence and simultaneity we have just described, however, suggest that the many forms of digital communication are a “game changer,” affecting not only the way people perceive distance between each other but also the way they perceive



their own communication needs and their own self-identities. The possibility of “accessibility fatigue” suggests that digital communication offers challenges and possibilities, especially as changing social expectations make it increasingly difficult to opt out of the use of this technology.

### **HYPOTHESIS 3: THE USE OF DIGITAL COMMUNICATION MAY SOMETIMES INCREASE INTERPERSONAL DISTANCE**

This brings us to the counterintuitive argument that the effect of digital communication may be to increase rather than to decrease perceived distance between people. We have already offered the example of a teenager who is chatting with a distant friend during a family gathering.

Consider these two further possible examples: in the first, a friend sends me a text at a time when I am physically unavailable (taking a nap or out of the range of the network). My response is delayed several hours, beyond when it was “needed.” It places me in the curious position of needing to apologize for not conforming to the expectation that my response should be immediate, for failing to be continually copresent. In the second, I post something on my social media that is important to me. As sometimes happens, I receive few or no responses, comments, or “likes.” The effect of this experience is that although the “objective” dimensions of distance are unchanged, I feel isolated from my friends and family by their perceived indifference. In all three of these examples, digital communication ultimately serves to increase the interpersonal distance we feel, independent of “objective” distance.

### **HYPOTHESIS 4: THE INDIVIDUAL WHO USES DIGITAL COMMUNICATION MAY BE ABLE TO SET A DESIRED LEVEL OF INTERPERSONAL DISTANCE WITH AN EASE THAT WOULD HAVE BEEN UNIMAGINABLE EVEN 25 YEARS AGO**

Sommer (2002) suggested that digital communication technology can be used by the individual to regulate personal space. Indeed, digital communication technology offers an unprecedented ability for me to place myself at what I might perceive as an “optimal” distance from others, and to choose that distance on a “case by case” basis. Consider the following three examples: a homebound person who uses digital technology to communicate with family and friends, who live at a distance, busy members of the same household who choose to communicate *via* e-mail rather than face-to-face, and a working mother who is in constant contact *via* text messages with her children at school, sometimes to the detriment of her attention to her coworkers who are physically present. In each case, psychological distance is being intentionally manipulated. Tjora (2011) describes the use of SMS for communicating with people who are in the same physical space. Why should this type of communication be used by people who know each other well and who are physically near each other? Tjora (2011) identified a number of different uses

of such communication, including flirting, discrete coordination, discussing other people present, making practical jokes, and communicating during meetings. Whichever purpose such communication may have, one consequence could be increased interpersonal distance to other people present.

It should also be noted that perceived psychological distance may influence the type of digital communication one uses. For instance, in a series of experiments, Amit et al. (2012) found that when communicating with someone who is proximal (temporally, socially, or geographically), people tend to prefer using pictures, whereas they tend to prefer using words when the other person is distant. This is consistent with previous claims that psychological closeness is associated with an increased tendency to communicate “in real time” (e.g., *via* telephone) but not in an increased tendency to use e-mail (Cummings et al., 2001), and that people prefer visual media when communicating with friends and significant others in distant locations (Amit et al., 2012).

### **IMPLICATIONS AND SUGGESTIONS FOR FUTURE RESEARCH**

We have proposed and discussed four hypotheses that can be derived from the literature on digital communication and construal level theory. Future research will need to develop ways in which these hypotheses can be empirically tested. We here outline only some general possibilities.

A starting point would be to construct a questionnaire asking members of the general public to provide examples of how they communicate with friends, colleague, family, and acquaintances, both digitally and non-digitally. For Hypothesis 1, the outcome variable would be their ratings of the different forms of distance, and the comparison of interest would be the degree of correspondence between these ratings for digital versus non-digital forms of communication. In all the examples they provided, participants would also be asked to rate the perceived interpersonal distance in the previously described relationships. Hypotheses 2 and 3 could then be tested by comparing the variability in these ratings across situations where communication was digital versus non-digital. According to Hypotheses 2 and 3, one would expect the variability in ratings to be larger for digital communication situations. Finally, Hypothesis 4 could be explored by asking participants to report the extent to which they felt that other forms of communication were available in each of the situations they described. We would predict the perceived degree of choice to be larger in digital contexts. More specific hypotheses could be developed on the basis of the results obtained, and these could in turn be tested through systematic experimental studies.

The findings from such studies could have a number of implications. On a theoretical level, they could make a contribution to our understanding of the phenomenon of interpersonal distance, for example, by detailing the conditions under which the different forms of distance dissociate. In addition, they could offer some guidelines as to how theories of interpersonal distance could be refined to accommodate the technological tools that we now use in our communication. This would parallel developments in educational research, where it has been suggested that learning

theories need to be revised and/or replaced in order to capture changes in how learning is influenced by technological development (Siemens, 2005). In the longer run, the findings from such studies could potentially also have implications for the development of digital communication technology.

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## AUTHOR CONTRIBUTIONS

All three authors contributed to the theoretical arguments presented in the paper. EN had the main responsibility in writing up the paper.

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