Cues to identity in CMC: the impact on person perception and subsequent interaction outcomes
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Citation for published version (APA):
CHAPTER I: INTRODUCTION

Computer-Mediated Communication (CMC) has undoubtedly become an integral part of everyday life for many people. In the organizational sphere, the intranet and its extensions to Internet are vital for knowledge sharing (Davenport & McKim, 1995), applications such as Group Ware (which allows the sharing of applications), Group Decision Support Systems and Computer Supported Co-operative Work (to support collaboration on shared tasks) have obtained a central position in the functioning of many organizations (cf. Fulk & Collins-Jarvis, 2001; Rice & Gattiker, 2001). Efforts are undertaken to stimulate teleworking, and virtual teams (and even organizations) are an increasingly common part of people's normal working experience (Jarvenpaa & Tractinsky, 1999; Maznevski & Chudoba, 2000).

Also in our private lives, more and more of our personal interactions are conducted by means of CMC. We may participate in chat rooms, contribute to bulletin boards and newsgroups, adopt instant messaging, play a part in MUDs (Multi-User Dungeons), MOOs (MUD, Object Oriented), and other multi-user games, or take part in online consumption activities through auctions, online shopping, etcetera. If these activities are too cutting edge then even the least technologically up to date person will have experienced e-mail, and it is telling that the volume of e-mail traffic has kept pace with the growing rate of data exchange of the Internet: Over 98% of the Americans who used Internet in 2002 sent or receive e-mail for work purposes (Pew Internet Report, 2002), and a survey on Internet usage in the United Kingdom showed that sending or receiving e-mail was by far the most used purpose of the Internet (Which?Online, 2003).

As CMC is becoming a more and more common means of communication, there is a growing interest in whether this sort of interaction is "neutral", in the sense that it leaves communications and social relations unaffected (Postmes & Spears, 1998; Spears, Postmes, & Lea, 2002; Walther, Anderson, & Park, 1994). Indeed research has suggested that CMC is not neutral: it can cause many changes in the way people communicate with one another, and it can influence communication patterns and social networks (e.g., Fulk & Collins-Jarvis, 2001;
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Fulk & DeSanctis, 1995; Hiltz & Turoff, 1978; Lucas & Baroudi, 1994; Sproull & Kiesler, 1991). Researchers have also noted the unpredictability of some of these changes, and the variability of CMC's social effects (Fulk & Collins-Jarvis, 2001; Rice, 1993).

The question of why CMC has these social effects has been a long-standing concern in social sciences. In search of an answer it has been observed that CMC distinguishes itself from face-to-face (FtF) communication on multiple dimensions (Rice & Gattiker, 2001). For example, some forms of CMC limit the level of synchronicity of interaction, which may cause a reduction of interactivity. CMC also has the potential to overcome space- and time-dependencies by which communicators are freer to send and receive messages wherever and whenever they want, thereby technically enabling a multitude of communication practices. These functions, combined with the global scale of this technology and the fast pace of innovation, are the means by which CMC provides the opportunity to overcome physical barriers and has the potential to break down boundaries of nationality, race, language, and ideology (e.g., Hiltz & Turoff, 1978; Postmes, Spears, & Lea, 1998).

However, the bulk of research has focused on the reduced capacity of CMC to convey social cues as the major cause of a wide variety of social effects (e.g., Bordia, 1997 for overview). In search of an answer to the precise effect of this capacity to convey social cues, much of the prior research tends to compare CMC and FtF with each other (see Bordia, 1997; Hancock & Dunham, 2001). While this comparison undoubtedly speaks to the question of whether differences between these media exist, it is much less suited to examining the causal explanations for media effects. This is especially problematic if CMC-FtF comparisons lead to specific conclusions about what has caused the difference between the two. It should be appreciated that CMC differs from FtF communication on many dimensions (Rice & Gattiker, 2001), and to confuse matters even more CMC is not just one thing but describes a range of practices. Therefore, I propose a more systematic approach, in which the effects of cues can be isolated, and examined on their own. In an attempt to do this, this thesis will present a series of (mostly experimental) studies that will hopefully provide us with more detailed insight in the working of the cues that are held responsible for so many social effects (both positive and negative).

Central throughout this thesis will be a focus on the role that social cues play in person perception (i.e., the processes by which people get to know and to think about other persons), and the subsequent effects this has on collaboration related aspects such as evaluations of the person, the interaction, and the medium. Evidence will be presented that
even the most minimal cues have varying effects depending on how they are used by the people involved.

Before going into detail in outlining the goal and content of this thesis, I want to give a brief overview of perspectives that are commonly used to explain or predict media effects (and CMC in particular). This overview is by no means a complete review, but provides a global overview of the thinking about media and its effects, and gives us the necessary theoretical background that is most relevant for this thesis.

**Classical Perspectives on CMC**

The first theoretical statements about the social impact of mediated communication originate from the mid 1970's when audio-conferencing became available. Short, Williams, and Christie conducted a series of experiments which led to the formation of their *Social Presence Theory* (Short, Williams, & Christie, 1976). This pioneering approach to mediated communication has laid the groundwork for the subsequent development of many later theories about medium effects. Central to the theory is the idea that a medium’s social effects are principally caused by the degree of *social presence* which it affords its users. The term social presence essentially refers to a communicator’s sense of awareness of the presence of an interaction partner. Social presence is conveyed by features that are deemed important in interpersonal communication, such as *nonverbal signals* (including facial expression, direction of gaze, posture, dress, physical distance), *proximity and orientation* (physical distance between and relative positions of communicators), and the *physical appearance* (Short et al., 1976). According to Short et al. social presence is important for it is closely related to person perception, i.e., the processes by which man comes to know and to think about other persons, their characteristics, qualities and inner states (Tagiuri, as cited in Short et al., 1976, p. 113). So, increased presence leads to a “better” (richer, less ambiguous) person perception. Thereby, social presence can be conceived as the degree of interpersonal contact a medium allows, closely related to notions of “intimacy” and “immediacy” (cf. Spears & Lea, 1992). Short et al. conducted a series of rating studies in which different media were ordered according to their social presence by using dimensions such as unsociable-sociable, insensitive-sensitive, cold-warm, and impersonal-personal. Based on this, different media types were ranked in which formal written messages were rated as least socially present, and face-to-face communication as most socially present. Needless to say that CMC-applications were not evaluated in the original studies (mid '70s), but because of their text-based form they
would undoubtedly hold a relatively low position (Spears, Postmes et al., 2002), and would be
typified as relatively unsociable, insensitive, cold, and impersonal.

*Information Richness Theory*, developed in 1984, is largely similar to Social Presence Theory
in many regards, but emphasized the more instrumental consequences of the ideas expressed
by Short et al. By this, the approach was less concerned with interpersonal relations, and more
with the transmission and comprehension of messages in an organizational context. Daft and
Lengel (1984; 1986) argued that the key to understanding the capacities of a medium is its
*richness*, which they defined as the potential information-carrying capacity (Daft & Lengel,
1984, p. 196). This capacity of a medium is largely based on the number of communication
channels utilized by a medium, called the *bandwidth*, which determines the maximum amount
of cues that can be conveyed simultaneously. FtF communication is also from this perspective
seen as the richest medium for it allows the transmission of multiple cues such as body
language, voice tone, and inflection to convey interpretation, the use of natural language to
convey subtleties, etc., all of which are believed to be important when it comes to successfully
deliver equivocal messages and express feelings or emotions (Daft & Lengel, 1984; Trevino,
Daft, & Lengel, 1990). Technological mediation (like CMC) is inherently more restricted, and
therefore less suited to accomplish socially complex or equivocal tasks (cf. Fulk & Collins-
Jarvis, 2001; Rice & Gattiker, 2001).

Similarly, the *Cuelessness Model* emphasizes the relevance of social cues for a communica-
tion medium’s social effects (Rutter, 1987; Rutter & Stephenson, 1979). Largely based on
Social Presence Theory, it assumes that an absence of cues results in particular communica-
tion styles and outcomes: “Cuelessness leads to psychological distance, psychological distance
leads to task-oriented and depersonalized content, and task-oriented depersonalized content
leads in turn to a deliberate, unspontaneous style and particular types of outcomes” (Rutter,
1987, p. 74). Again, FtF interaction is seen as more *personalized* and therefore more socially
rich, compared to (computer-) mediated forms of communication. CMC would therefore be
less social, and characterized by a strong task-orientation. Especially so because mediated
communications miss out on cues that *shape* the interaction. For instance, non-verbal visual
cues like gazing, averting the eyes, nodding, hand gestures, and so on are seen as important
for they may regulate “turn-taking”, prevent communicators speaking at the same moment
and so on. Obviously, all these cues are most often unavailable in online interactions, and
therefore this medium has severe limitations for its users. In general, the cuelessness makes
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the interaction less personal and makes it almost impossible to convey subtleties of self-presentation (Rutter, 1987).

In the early 1980s the very influential Reduced Social Cues Approach was developed in a program of research at Carnegie Mellon University that was more directly concerned with CMC and its social influence (Kiesler, 1986; Kiesler, Siegel, & McGuire, 1984; Sproull & Kiesler, 1986; Sproull & Kiesler, 1991). In line with the approaches described already, the Reduced Social Cues Approach links the restricted ability to convey cues to a diminished attentiveness to the people involved in the interaction (similar suggestions were made by Hiltz & Turoff, 1978, but without the theoretical framework and subsequent empirical investigations). Theoretically, the reduction of cues is believed to lead to a state of decreased awareness of the self and of others, which results in disinhibited and anti-normative behavior, and a variety of other outcomes such as greater equality.

The absence of social context cues makes it hard for people to perceive and adapt to the social order, social structures, and roles, and situational norms.... When social context cues are weak, people feel distant from others and somewhat anonymous. These feelings tend to produce self-centered and unregulated behavior. People become somewhat less concerned about making a good appearance” (Kiesler & Sproull, 1992).

Central assumption of the Reduced Social Cues approach is that the absence of social cues works deindividuating (see Postmes & Spears, 1998, for a review). Deindividuation is a state in which people lose their individuality because “group members do not feel they stand out as individuals” and individuals act as if they are “submerged in the group” (Festinger, Pepitone, & Newcomb, 1952, p. 382). By this, social and normative influences are believed to be undermined, and behavior is believed to become deregulated and anti-social. So, also the Reduced Social Cues approach ascribes relatively little social power to computer-mediated relationships: again, cues that enable the communicators to perceive one another as individuals are relatively absent, which diminishes the awareness of the self and the other, thereby deregulates social behavior (see Spears & Lea, 1992 for extensive review of this theory and its assumptions).

According to the approaches described thus far, the extent to which people perceive each other as “real individuals” is to a great extent determined by static characteristics of the
medium that either do or do not allow the transmission of social cues. In all these approaches it is assumed that the absence of social cues impairs the accuracy of personalized perceptions as they are formed during the interaction. One of the critiques of this has been that this does not take into account the creativity of users to respond more inventively to media constraints (Walther, 1992, 1996). Partly due to this, these theories essentially reduce the study of media effects to the study of capacity. Although the study of capacity is undoubtedly important (for example in understanding the immediate effects of such factors on person perception, as argued in this thesis) it is equally important to recognize that the usage of technology in all its richness should not be reduced to being just about the “richness” of the medium (Dijk, 1994; Fulk & Collins-Jarvis, 2001). On these grounds, many have argued that the social effects of technology should not be understood as being determined by media characteristics (technological determinism), but as products of social and technological influences.

In this vein, various theoretical perspectives have emerged that take a more constructionist approach in stating that the effects of ICT are not determined by its characteristics, but in ongoing interaction between the technology and the social context (Fulk, 1993). In a similar vein, Adaptive Structuration Theory (AST) argues that social context and technology mutually influence the “structuration” of technology (Contractor & Seibold, 1993; DeSanctis & Poole, 1994; Orlikowski, Yates, Okamura, & Fujimoto, 1995). These theories have had a big influence in thinking about human–computer interactions, principally as a counterpoint to the reductionism inherent in technological determinism, by arguing that technology ultimately has social effects because it is an instrument in social praxis.

Nonetheless, these theories have been criticized on the grounds that they replace technological determinism with social determinism, by undertheorizing the extent to which media characteristics have any (predictable) influence at all (see Spears, Postmes, Wolber, Lea, & Rogers, 2000). Thus, Button (1993) characterizes the social studies approach to studying the social usage of technology as “a curious case of vanishing technology.” The ultimate critique, then is that in these approaches “technology” remains unspecified or “black-boxed” (Lea, O’Shea, & Fung, 1995). Despite the value of these alternative approaches to the wider social effects of communication technology, this effectively sidesteps the issue whether medium characteristics can have more immediate effects on proximate outcomes such as person perception. Although it is important not to reduce the “social effects “ of technology to these more proximate effects, it is nonetheless a valid question what those immediate effects would be, if any. Sadly, neither constructionist approaches nor AST lend themselves to making any concrete predictions about this.
Different approaches have been more explicitly concerned with presenting interactionist theses which lend themselves to making more specific predictions about the interaction between technology and social context. One successful attempt to do this was made by Walther and colleagues who state in their *Social Information Processing Theory* (SIP, Walther, 1992; Walther et al., 1994) that social presence does not necessarily disappear as a result of a reduced media capacity. SIP asserts that communicators using any medium experience the similar needs for uncertainty reduction and affinity, and assumes that communicators in CMC, like communicators in general, want to develop a meaningful personal relationship. What is markedly different in this approach to earlier (determinist) theories is that users are theoretically “empowered”, having agency in their social use of the technology and in shaping its outcomes (at least to a certain extent). SIP argues that to the extent that people strive to develop meaningful interpersonal relations, CMC-encounters are no different from FfF-encounters. To meet these needs, and thus in attempt to overcome these limitations, users of CMC will adapt their linguistic and textual behaviors in such a way that the presentation of socially revealing, relational signals that may normally be conveyed through a variety of channels will now be communicated via text only. Thereby, all media are able to convey these social cues, and the difference between FfF and CMC from this perspective is a matter of rate, not capability, implying that computer-mediated interactions can be as personal as face-to-face interactions (Walther et al., 1994, p. 465). Although this model has received empirical support (Walther, 1996, for a review), more recently the perspective has incorporated additional contextual factors, such as anticipation of future interaction (which proved to be a better predictor of relational communication than the used channel) and group salience (an important factor in this thesis, as will be elaborated in the next part).

Another perspective that is not so much “capacity-focused” and states that CMC is not per definition “socially impoverished” is the *Social Identity model of Deindividuation Effects*, or SIDE for short (Reicher, Spears, & Postmes, 1995; Spears & Lea, 1994). SIDE builds on Social Identity Theory (Tajfel, 1978; Tajfel & Turner, 1986), and Self-Categorization Theory (Turner, 1982; Turner, Hogg, Oakes, Reicher, & Wetherell, 1987), in making a distinction

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1 Walther continues by proposing that the relative “anonymity” in CMC may even cause the interaction to become hyperpersonal, by which CMC becomes more socially desirable than usually experienced in face-to-face interactions (see for detailed discussion: Walther, 1996, p. 17).
between *personal identity* and *social identity*. This distinction is based on a theory of the *self*, which proposes that a person is not just an individual with idiosyncratic personality characteristics, but derives certain identities (social identities) from various groups to which he or she belongs (Tajfel, 1978). In brief, SIDe proposes that under conditions of relative anonymity (i.e., when social cues are absent) a shift in focus may occur from individual to social identity. Before explaining the rationale behind this, it is useful to first provide some background information about the underlying theoretical assumptions.

As mentioned above, SIDe revolves around the notion of social identity. The consequences of seeing the self and others in terms of social identity has been a central point of investigation that started with the so-called *minimal group studies*, performed in the early 1970s by Tajfel and colleagues. These studies showed that under conditions where people perceive themselves as a member of a group, in-group favoritism was demonstrated, even though group differences were objectively minute. In other words, these studies showed that the mere knowledge of being in a group with others was sufficient to produce group-based behavior, distinguishing between “us” and “them”.

These findings formed the basis of the development of the *Social Identity Theory* (SIT, Tajfel, 1978; Tajfel & Turner, 1986), and its extension *Self-Categorization Theory* (SCT, Turner, 1982; Turner et al., 1987). Central in the SIT/SCT perspectives is the notion of *social identity* which is defined as “the individuals’ knowledge that her [or she] belongs to certain groups together with some emotional and value significance to him [or her] of the group membership” (Tajfel, as cited in: Haslam, 2001). This *social identity* can be distinguished from a *personal identity*, which refers to the individual’s unique attributes such as idiosyncratic personality traits, physical appearances, etc.

SIT and SCT suggest that in a context in which people recognize themselves and others as belonging to a same (social) group, group members will seek to achieve positive self-esteem by differentiating their ingroup from a comparison outgroup on a dimension that

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2 Probably the most famous of these studies are the experiments in which boys from a south-western school in Great Britain were asked to look at paintings from two artists (Klee and Kandinsky) and to judge them. The boys were then told that they would be divided in two groups, based on their preference for one of the artists. In reality the groups were formed completely randomly. Subsequently, the boys were asked to allocate points to anonymous members of the ingroup and to the outgroup, and results showed that even under these minimal conditions, ingroup favoritism was demonstrated by which more points were allocated to people that belonged to the ingroup (Tajfel, Flament, Billig, & Bundy, 1971).
is important in the light of the interaction (Haslam, 2001; Turner et al., 1987; Turner, Oakes, Haslam, & McGarty, 1994). So, when people’s notion of who they are is defined more in terms of “we” instead of “I”, the ingroup (“we”) is wanted to be seen as different, and preferably better, than the outgroup (“they”) (Haslam, 2001, p. 31). Thus, group members’ social identity will be accentuated, and by doing so, stereotypical characteristics will be attributed to its members. This process applies both to perceptions of the ingroup and to perceptions of the outgroup. Thus, the ingroup is likely to be seen in ingroup stereotypic terms and the outgroup in the stereotypic terms that are considered “appropriate” for them.

Whether or not specific cues will be used to categorize or to individuate depends on the situation at hand:

“... categorizing is inherently comparative and hence is intrinsically variable, fluid, and relative to a frame of reference. It is always context dependent. Self-categories do not represent fixed, absolute properties of the perceiver but relative, varying context-dependent properties” (Turner et al., 1994, p. 456).

This is an essential argument, for it suggests that group behavior is associated with a change in self-categorization, but that the basis on which specific categorizations are made, is context- or situation- specific (see the introduction of Chapter IV for more elaborate discussion of categorization and identity salience as a product of category accessibility and fit). Consequently, when people perceive themselves and others in terms of the appropriate social identity, social behavior will be partly determined on the basis of these identities and the stereotypes that accompany them (Turner, 1982).

This attribution of characteristics based on the group to which one belongs implies that perceptions can be formed without the need for people being visible or otherwise socially present. On the contrary: SIDE proposes that in conditions where people are relatively anonymous and relevant social identities are known and salient in the context of the interaction, group characteristics will automatically be attributed to the individuals (Reicher et al., 1995). The decreased attention to individual characteristics provides a context in which interpersonal distinctions within the group are more difficult and less likely to be made. Turner et al. (1987) refer to this as “depersonalization” of social perceptions of others and the self. Provided that it is clear what the relevant social group is, and provided that the group’s attributes are known or can be inferred, the lack of personal information can thereby
accentuate the unity of the group and cause persons to be perceived as group members and perceptions will be formed in terms of this group membership.

This reasoning has some important implications for the possible effects of CMC. It implies that a medium’s capacity to convey cues is not the only factor that should be taken into account when examining its effects. According to SIDE (Reicher et al., 1995; Spears & Lea, 1994), factors that have traditionally been identified as limiting individuation in groups, such as anonymity and group immersion (Zimbardo, 1969), caused by the limited capacity of computer networks (Hiltz, Turoff, & Johnson, 1989; Jessup, Connolly, & Tansik, 1990; Kiesler et al., 1984) do not necessarily preclude that strong and consistent social behavior may occur (Postmes & Spears, 1998). According to SIDE, media effects are produced by the interaction of the characteristics of a communication medium (such as capacity) with characteristics of the social context (such as the salience of social identities), and capacity is certainly not the only determinant of the social effects of a medium (Lea & Giordano, 1997; Postmes & Spears, 1998). In other words, SIDE argues that a medium which leaves its user “cueless” does not mean the user will be “clueless” (Spears, Lea, & Postmes, 2001).

In sum, SIDE proposes that the presence of cues may accentuate the inter-personal dimension (I and you) of an interaction. Thus, within this, there is an assumption that social cues in one form or another help to individuate a target other. In this limited sense, SIDE makes an assumption that is quite compatible with that of other theories in this domain. However, the important addition of SIDE is that it differentiates the effects that such social cues have in the interpersonal sphere (i.e., impression formation or individuation of individuals) from effects of cues on the dimension of social aspects of identity (by which it is assumed that the absence of cues that individuate, may increase the attention of one’s social identity). In SIDE research it is assumed that individuation is more likely when social cues are communicated through direct visual contact, close proximity, portrait pictures or any other means—the emphasis here seems to be on social cues as signals which lend themselves from forming differentiated impressions of a person as distinct from others in the same group.

Unraveling “Social Cues”

At this point, the different perspectives leave us with some contradictions with respect to the function or value of social cues. On the one hand, the more deterministic “capacity-focused” approaches such as Social Presence Theory, Information Richness Approach, Cuelessness Model, Reduced Social Cues Approach, and to a lesser extent the Social Information Processing Theory all ascribe an important role to cues in making the interaction more
“social”: These perspectives propose, implicitly or explicitly, that the presence of these cues is the critical determinant of a medium’s social effects. Thus, superficially, all the theories mentioned above would appear to agree that social cues are of vital importance for social interactions one way or the other.

On the other hand, the SIDE-model asserts that this does not have to be the case, and the number of cues that increase the social presence (or the capacity of a medium to convey them) is not the only determining factor of a medium’s effect. SIDE concludes that social interactions may even benefit from an absence of personalizing cues. So, these approaches do not sit comfortably with one another to say the least, in that they vary in the amount of significance that is given to social cues. However, upon closer examination, the term “social cue” is not a very good description of the precise content of the signals that are believed to be of importance in each different perspective. The notion of social cues refers to different concepts in the various theories, and moreover, the different perspectives’ emphasis on the key functions and consequences of ostensibly similar cues is also quite diverse, as is summarized in Table 1.

For example, the Information Richness approach associates social cues with message content, in which the richness of the communication serves to communicate a particular piece of information more or less ambiguously (Daft & Lengel, 1984, 1986). By this, the “informational” value of these cues is stressed, in which cues are seen as vital for the successful delivering of equivocal messages, especially when it comes to message comprehension related to expressing feelings or emotions (Daft & Lengel, 1986).

Short, et al. define social presence as the degree of salience of the other person in the interaction (1976, p. 65). By this, “social” seems to be equated with “interpersonal”, in which cues are believed to be vital for they make the individuals more present (Short et al., 1976) and immediate (cf. Spears & Lea, 1992). This is perceived as important for guiding the interaction process, and making interactions more personal and spontaneous, and “less mechanical” (Rutter, 1987). Rutter continues by stating that the absence of social cues leads to the perception of the other being “not there” (1987, p. 137), and, when these cues are absent, the interaction will become less personal, unspontaneous, and task orientated (Rutter, 1987). Therefore, social cues are beneficial, if not necessary for interpersonal relations and the inability to convey these might maybe not prevent, but at least retard the development of highly personal, social relationships (Walther, 1992, 1996).

Again others mention social cues in their role in preventing deindividuation, by which people become less aware of others, but also less aware of the self, which is believed to
influence social behavior in a variety of predominantly negative ways (Kiesler, 1986; Kiesler et al., 1984; Reicher et al., 1995; Spears & Lea, 1992). The Reduced Social Cues Approach (Kiesler, 1986; Sproull & Kiesler, 1986) states that the absence of all person-related cues impairs social behavior, for people become less aware of the self and others, which is believed to deregulate social conventions. Even though this model has received some support, empirical evidence has also cast some doubt on the validity of these predictions (Spears, Lea, Corneliussen, Postmes, & Ter Haar, 2002). For example, research has suggested that increased task focus might itself increase the awareness of others involved (cf. Matheson, 1992, for disconfirmatory evidence of RSC assumptions).

The SIDE-model, finally, stresses that the absence of social cues might have the opposite effect of strengthening social influence, by which social effects are primarily group-related outcomes instead of interpersonal ones.

So, in theorizing, the reference to “social cues” comprises a range of different elements, as can be seen in Table 1. Such an indiscriminate usage of the concept of social cues is perhaps not as surprising as it seems: implicitly the term social cues refers to the multitude of signals which are being communicated in FtF interaction. When comparing FtF interactions with all different sorts of mediated interactions it is difficult, if not impossible to disentangle these closely knit concepts, for in FtF interactions, one inherently comes with the other. For example, facial expressions do not only emphasize the presence of the individuals, they also may clarify, or give meaning to the message (such as exaltation, disbelief, sarcasm, etc.), may provide information regarding the identity of the individual (looking condescendingly may be an indicator of one’s status) and may give away clues to (social) group membership (such as gender, age, or culture). However valuable this is for relating media use to message complexity or message comprehension, it provides us little or no understanding of the underlying socio-psychological processes that are linked to social cues in more detail, and provides us with no insight in the different functions these cues might fulfill.

Although superficially the variation between theories seems to be primarily between the consequences that they discuss and that they presume social cues would have (with the biggest distinction being between prediction of SIDE and RSC), on closer inspection these theories do seem to be discussing different types of cues with different theoretical consequences to a much greater extent than is traditionally highlighted in reviews or theoretical discussions in this field (Postmes et al., 1998; Rice & Gattiker, 2001; Spears & Lea, 1992; Walther et al., 1994).
Table 1. Conceptions of Social Cues and Social Effects in Different Theoretical Frameworks and their Purposes in Interactions

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<tr>
<th>Theory</th>
<th>Cues</th>
<th>Intended effects</th>
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<td>Information Richness</td>
<td>body language</td>
<td>disambiguation of message content</td>
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<td>voice tone and inflection</td>
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<td>natural language</td>
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<td>Cuelessness</td>
<td>visual contact</td>
<td>personalizing individuals</td>
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<td>body language</td>
<td>regulating interaction</td>
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<td>psychological proximity</td>
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<td>spontaneous interaction</td>
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<td>Social Presence</td>
<td>non-verbal communication</td>
<td>person perception</td>
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<td></td>
<td>proximity and orientation</td>
<td>intimacy / immediacy</td>
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<td>physical appearance</td>
<td>interpersonal relations</td>
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<td>Social Information</td>
<td>visual contact</td>
<td>relationship formation</td>
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<td>Processing</td>
<td>linguistic behavior</td>
<td>interpersonal relations</td>
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<td>non-verbal communication</td>
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<td>Reduced Social Cues</td>
<td>non-verbal communication</td>
<td>normative behavior</td>
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<td>visual contact</td>
<td>social influence</td>
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<td>SIDE</td>
<td>individuating cues</td>
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<td>social categorizing cues</td>
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Therefore, it would appear theoretically beneficial to systematically compare and contrast the perspectives in their theoretical dealing with social cues and their presumed effects.

To some extent, this kind of exercise would benefit and clarify all the theoretical perspectives discussed here, as they share a slight confusion over what aspects of communication (content, non-verbal signals, or for example cues to group membership) are particularly influential for the varying functions they are believed to serve (keeping in mind that for instance non-verbal communication is believed to disambiguate message content, but also to improve interpersonal relations). Thus, we need to also unravel the indiscriminate social effects that different theories purport to describe and explain.
Unraveling “Social Effects”

Based on the overview of perspectives, and the attempt to distill the various functions they ascribe to the term “social cues”, it becomes clear that the concept of social cues is ill-defined, and, more importantly, the broad definitions seem to be untenable when trying to theoretically explain or predict their varying effects. After all, to the extent that non-verbal communication assists message comprehension, such social cues would in their function appear to be indistinguishable from other forms of content, at least in their effects upon receivers. For instance, to represent the shape of an object by non-verbal signals such as hand gestures would serve a similar function as a pictorial representation of the object.

A similar kind of objection can be raised for all the kinds of cues that the various theories have focused on. For example, the non-verbal thumbs-up signal can function as a gesture of approval of message content, but also be interpreted as a reinforcement of an interpersonal relation.

The key problem is that “receivers” can use any kind of cue, such as non-verbal communication, physical orientation, or even message content, for a wide variety of purposes, ranging from message comprehension to social categorization. Therefore, it appears to be not sensible, or even possible to make a clear-cut distinction between different kinds of cues on the basis of the signals they provide, but rather more useful to make a distinction on the basis of how signals are used by the receivers. Another way of saying this is that although a variety of cues may be discerned as social signals, at the end of the day it is down to the receivers to interpret those signals and thereby to give meaning to the cues (i.e., ultimately deciding whether nonverbal cues are used for relational purposes, message comprehension, individuation, or even social categorization). This is a vital step that has to be taken in order to be able to disentangle what these theoretical perspectives say about the value and effects of cues, and might provide us with some important insights into the differences and seeming contradictions between different perspectives.

Using this approach, a first distinction that would appear to be helpful is the distinction between cues to identity and cues to meaning. This distinction broadly refers to the dual purpose on the part of the receiver of extracting information about the source, and of understanding its content at the same time. Of course, it should be clear that there is a mutual interaction between these two, such that knowing a source’s identity influences meaning and comprehension, and vice versa (cf. Mackie & Cooper, 1984), but this is notwithstanding the more clinical observation that within a particular communication context certain signals or
social cues are likely to be used to infer meaning, whereas other signals may primarily be used to infer identity.

Looking at the range of theories in Table 1 through this lens, it becomes clear that most of the theories mentioned there (with the possible exception of Information Richness Theory) are primarily concerned with the effects of social cues in their usage as cues to identity. In other words, the predominant emphasis is on effects of factors such as non-verbal cues on the interpersonal, relational, and social consequences, and not on message comprehension. This is perhaps not surprising given the fact that mediation is not so much an obstacle to the communication of meanings, but does present obstacles for the communication of identity (or, if one likes, liberates the communication of identity, cf. Turkle, 1995). This conveys that, within the context of CMC, it is likely that the text of a message provides the receiver with relatively more cues to meaning, whereas visual representations and biographical details of the author are more likely to be used as cues to identity. It should however be stressed that these different forms of information exchange do not exclusively function as one or the other: In (text based) conversation, many cues can and will be conveyed that may function as a cue to identity. For example, it is well possible that the content of a (text-based) message can provide information that reveals that the sender is a professional manager (e.g. through the use of specific wording), thereby providing information about his/her identity. It is also possible that the message conveys cues indicating that the other is friendly or affectionate, by which the cue may contribute to the meaning of the message (“he likes me”). The opposite is also possible, by which visual or biographical information not only functions as a cue to identity, but also provides information that can be used to give meaning to the message. For instance, knowing that someone is a police officer is a cue to the identity, but also may give meaning to his/her remark about the consequences of jaywalking.

Thus, by taking the subjective perspective of the receiver of a communication, the multitude of communication signals that are central to the theories discussed above (i.e.,

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3 Information Richness Theory is the one possible exception to this, but also in this theory it should be noted that the emphasis is not exclusively on message comprehension. After all, Information Richness Theory is based on the assumption that the main goal of communication is to resolve ambiguity and reduce uncertainty (Daft & Lengel, 1984, 1986). In this, the source of ambiguity and uncertainty is predominantly social (i.e., rooted in inter-personal and organizational dynamics), and the purpose of communication is social, too (namely as a vehicle for the transmission of information, which is believed to reduce uncertainty and disambiguate). In that sense, then, Information Richness Theory considers only message comprehension as a function of media characteristics because it takes the social effects for granted.
Column 2 of Table 1) all serve a similar function as cues to identity. The consequences of knowing more or less about the identity of the source, however, are many and far between. This is illustrated in the third Column of Table 1. As can be seen there, cues to identity perform various functions which are not easily condensed. Upon closer inspection, presumed effects of cues all revolve around immediate consequences for the perception of the other. In this thesis (and on the basis of some of the empirical results obtained over the course of this research), I would like to argue that it is beneficial to differentiate three inter-related aspects of person perception. The first two of these are generally considered most central to person perception: They are the impression formed about a person per se (i.e., knowing things about a person as an idiosyncratic individual), and the interpersonal relation that is implied in this impression (i.e., an affective dimension of liking this person more or less). However, there is a third (and equally basic and primary) evaluation that needs to be taken into account: the social-categorical perception that is implied in an initial impression that one can form (i.e., seeing this person in terms of the same “higher” order social group as one’s own, or a different one). In sum, three distinct aspects of person perception are related to ambiguity, inter-personal attraction, and social categorization.

The theoretical assumptions of all the models in Table 1 (again with the possible exception of Information Richness Theory) all revolve around assumptions about the effect of cues to identity on these three facets of person perception. From the presumed effects stem the multitude of other social effects which these theories have elaborated on. Rather unfortunately, the subsequent programs of empirical research on CMC have tended to ignore person perception by and large, and focused much more on more distal social effects. For example, although in the theorizing of Short et al. (1976), the emphasis was very much on the process of person perception and “immediacy”, in the empirical research within that program they examined group outcomes such as negotiations and group decision making—hardly a direct match of outcome examined to the process variable implicated. Similarly, in research on the Reduced Social Cues model the emphasis has been squarely on describing effects of CMC on group polarization, equalization, anti-normative behavior, and other groupy social effects, but there has hardly been any examination of the presumed underlying proximate effects on person perception or perception of the self (see Matheson & Zanna, 1989, for an exception). This is disturbing for it shows that many conclusions about the effects of cues to identity are drawn from research examining their more distal effects (in terms of decision making, social influence, anti-normative behavior, etc.). This is especially problematic in light
of the different predictions of these models that could have arisen because of a relative neglect and lack of understanding of the more proximate effect of cues on person perception.

Of course, there are a few exceptions to this general pattern. In recent research there has been some attention to studying the effects of cues on proximate outcomes. For example, the research on SIP has examined effects of cues on interpersonal attraction, especially focusing on the effects of cues on longer-term relationship development. However, this work was somewhat selective in its emphasis in some regards. For example, it has taken for granted the immediate effects that cues to identity may have on impression formation (assuming that having cues would be beneficial). Only recently, Tidwell and Walther (2002) sought to determine how impression development takes place in a CMC setting, but again inseparably linked this variable to its benefit for interpersonal relationships (p. 342), and the assumption that people will most often actively seek to accomplish such a relation. Likewise, research on the SIDE model has occasionally examined proximate effects of cues on variables such as social identification and attraction (cf. Lea, Spears, & de Groot, 2001; Postmes, Spears, Sakhel, & De Groot, 2001), but has failed to provide a more comprehensive analysis of effects of cues on person perception and interpersonal relationships. Moreover, by far the most research on SIDE has focused on social influence, group attraction, or other social effects, bypassing the proximate effects on person perception. More recent research in this tradition has suggested that cues can exert independent (contradictory, even) effects on variables such as interpersonal attraction and attraction to the group (Sassenberg & Postmes, 2002; Utz, in press). In sum, there has not been a systematic program of research to date examining the assumption that cues would have specific effects on different aspects of person perception.

**Summing Up: What is Central to this Thesis**

In the above I have sought to establish that the many theories dealing with social effects of CMC have a surface similarity in that they all ascribe a central role to the availability of “social cues”. However, upon closer inspection it became clear that these theories refer to a variety of different signals when talking about these cues, and in addition, they consider a heterogeneous range of social effects. It was implicit in the discussion that a tension exists between the **macro-social implications** of these theories (e.g., individualization and harshening of society), the **meso-social outcomes** they describe (for example online relations, group decisions, and social influence), and the **micro-social processes** that are presumed to be underlying all these effects. Much of the theorizing has focused on the macro- or meso-social
effects of CMC, but without giving much attention to the proximate or micro-social processes that underlie them. It are exactly these proximate processes that form the pivot of this thesis, and, in my opinion, should not be taken for granted in understanding or predicting the more distal outcomes.

Most of the perspectives ascribe a central role to the receiver using communicative signals as cues to identity, and I have argued that the impact of these cues on person perception is deemed responsible for the subsequent social effects, by which person perception can be further subdivided into three aspects: impression formation of an individual, an affective response towards the individual, and the social-categorical perception of that individual. How cues to identity affect these three facets of person perception has not been systematically examined (if at all). It is this lacuna which I seek to fill in this thesis, and which provides the central question of this thesis: How can cues to identity influence person perception, and what subsequent effects does this have for CMC interactions?

Cues to Identity in CMC: Their Usage for Person Perception and Subsequent Effects

The distinction between meso-social and micro-social processes is also of importance in the quest for the most relevant context in which research on these processes is to take place. More concretely, a lot of research on CMC and mediated communication that has been conducted from the perspectives described above has examined experimental groups in a laboratory setting, online communities such as newsgroups, or other large groups (such as organizations). It is however, questionable whether such a research context does provide the setting in which the proximate effects of cues to identity on person perception can be isolated successfully.

What I mean is that the multitude of communications and social processes invoked by complex interaction settings such as group discussions or other multi-person involving activities would risk contaminating the pure effects of cues to identity on the immediate perceptual responses. After all, in groups people have to cope with a barrage of social signals that characterizes communication in groups (such as status differences, majority influence, leadership behavior, the complexities and demands of the task at hand, etcetera), and the principal problem could be that such a confounding of a wide variety of social inputs makes it hard, if not impossible to distil the immediate effects of cues to identity on person perception. Therefore, these processes are best studied in a setting that enables the isolation of these immediate effects of cues to identity, which in my opinion would be the dyad.
From a theoretical perspective, such a setting would be especially useful for expanding our knowledge on possible effects of individuation (or the lack thereof) as predicted by SIDE: SIDE conclusions are mostly based on examining groups that consist of more than two people. In explaining the effects, it tends to use assumptions derived from effects of anonymity in groups (e.g., Reicher, 1984), which are then projected on a CMC situation. However, this carries with it a risk of omitting the discontinuity that exists between how groups behave and what happens on the Internet, where people most often communicate one-to-one in a relatively anonymous setting. So, however beneficial this approach is for studying online communities or groups that use CMC, it is questionable whether its predictions are all that relevant to inter-personal communications (such as e-mail or instant messaging), where the social influence of the group might be less present. Therefore, a setting like this puts SIDE to the test, and dyads form the most conservative check of SIDE expectations. This could be a disadvantage of this setting, but then again, it would be much more powerful if effects of social identity can be found in such a context.

In addition to this operational necessity and theoretical value of studying dyads instead of larger groups, the examination of dyads also has great ecological validity for the usage of the Internet and other forms of computer-mediated communication in general. Although CMC applications are used (and effective) for interactions between large numbers of individuals (for instance chatrooms, bulletin boards, MUDs and MOOs, or Group-Decision Support Systems), dyadic interactions, is a form of communication that is most common online: The bulk of communication over the Internet is via (interpersonal) e-mail. Therefore, dyads best represent the social grouping that dominates the everyday communication practice of the Internet, and it is the archetype of CMC as a result. Studying how cues to identity affect the different facets of person perception could therefore best use the dyad as the most ecological context in an attempt to link theory to practice.

**Overview: Variables under Investigation**

As is mentioned in the beginning of this introduction, CMC is widely used as a means of communication, both privately as well as professionally. As has become clear from the overview of theoretical perspectives, the capacity of a medium to convey cues (and especially cues to identity) has been held responsible for many of its uses and effects. In this thesis a series of studies will be presented that provide us with more insight in the use of cues to identity in online collaborations, and more specifically, investigate their function on aspects that are related to the interaction process itself. As can be seen in Table 2, the variables under
### Table 2. Variables Under Investigation

<table>
<thead>
<tr>
<th>Cues to identity</th>
<th>Proximate effects of cues</th>
<th>Distal effects of cues</th>
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<tbody>
<tr>
<td></td>
<td>Person perception</td>
<td>Interpersonal evaluations</td>
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<tr>
<td></td>
<td></td>
<td>- ambiguity reduction</td>
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<tr>
<td></td>
<td></td>
<td>- positivity of impression</td>
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<td></td>
<td></td>
<td>- trust</td>
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<td></td>
<td>- individuation</td>
<td>Interaction evaluations</td>
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<td></td>
<td>- relationship formation</td>
<td>- collaboration preference</td>
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<tr>
<td></td>
<td>- social categorization</td>
<td>- work satisfaction</td>
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<td>- subjective performance</td>
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<td>Medium evaluations</td>
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<td></td>
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<td>- perceived usability</td>
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<tr>
<td></td>
<td></td>
<td>- medium satisfaction</td>
</tr>
</tbody>
</table>

*Note. Superscript indicated study in which variable is investigated: a: 2.1, b: 2.2, c: 3.1, d: 3.2, e: 3.3, f: 4.1, g: 4.2, h: 4.3, i: 5.1

* In study 4.3, the dependent variable was collaboration preference but invested trust. Because of the likeness of the concepts, it is grouped under collaboration preference.

Investigation can be roughly divided in three categories (interpersonal evaluations, interaction evaluations, and medium evaluations), in which the effects of cues to identity are examined. By doing so, a central role will be given to the various uses these cues can have for person perception, and it will be shown that their effects largely depend on exactly these roles.

In four empirical chapters, I will present a series of studies that examines how cues to identity affect these distinct but closely related facets of computer-mediated interactions. Chapter II consists of two studies that examine the effect of cues to identity on anticipated value for online interactions, and how these cues affect interpersonal evaluations. The first of the two studies shows that, when given the choice, people prefer to interact with a person of whom cues to identity are present, especially when the communication activity is believed to be socio-emotionally complex. The results of the second study show that (even relatively minimal) cues to identity affect the subjective quality of interpersonal evaluations: cues to identity contribute to less ambiguous and more positive person impressions. So, conclusions are drawn that presenting cues to identity has seemingly straightforward effects on how...
people anticipate their comfort in interactions, which seems to be based on the confirmed assumption that these cues to identity contribute to more positive interpersonal evaluations.

However, Chapter III shows that with respect to assessments of collaborations, the effect of cues to identity is less straightforward, and seems even contradictory. Overall, evidence was found that under specific conditions, participants that interacted without the presence of the cues to identity indicated higher work satisfaction, better subjective performance, and higher medium satisfaction compared to participants that interacted with cues to identity present, and indicated to feel more certain when collaborating without these cues present.

In the subsequent Chapters 4 and 5 an explanation is sought for these seemingly contradictory findings. This explanation is found in the acknowledgement of the different usage of cues to identity by the receivers. In these chapters, a distinction is made between two possible uses of cues to identity by differentiating cues to personal identity (in which they serve to form impressions, and enables people to individually differentiate people from each other) from cues to social identity (in which cues are used for social categorization on the basis of relevant group membership). The studies show that ingroup favoritism may occur when decisions have to be based on cues to social identity only, but that this effect can be overthrown by cues to personal identity. In various studies, the interplay of these distinct uses of cues to identity is shown to affect collaboration preferences (Study 4.1 and 4.2), trusting behavior (Study 4.3), and interaction evaluations such as work satisfaction and objective performance (Study 5.1).