Online communication, interpersonal attraction, and friendship formation

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Introduction

The popularity of various applications to form and maintain relationships on the Internet has increased tremendously over the past few years. Not only has the use of Instant Messaging (IM) become a fixture in young people’s social lives, but also social network sites, such as MySpace and Hyves, have become an integrated venue to maintain social life. For example, from 2006 to 2007, MySpace grew from about 66 million to 114 million unique visitors worldwide, and Facebook grew from 14 million to 52 million visitors during the same period (Comscore.com, 2007). The Netherlands, where the studies of this dissertation were done, has the highest concentration of members of social network sites. About 49% of the Dutch between 18 and 65 years of age were a member of a social network site, followed by the United Arab Emirates (46%), Canada (44%) and the United States (40%) (Synovate.com, 2008).

The growing popularity of the Internet as a place for relationship formation and maintenance is hardly surprising. Online communication or, more generally, computer-mediated communication (CMC) has some characteristics that may stimulate interpersonal attraction and, thereby, relationship formation. The reduced visual and auditory cues of CMC and the resulting visual anonymity, in particular, are assumed to stimulate interpersonal attraction (Cooper & Sportolari, 1997; Walther, 1996; Walther, Slovacek, & Tidwell, 2001). For example, Walther’s hyperpersonal framework (1996) states that the reduced cues of CMC settings makes people feel less inhibited and encourages them to disclose their inner feelings at an earlier stage (McKenna & Bargh, 2000; Walther, 1996). This higher level of intimate self-disclosure in CMC, in turn, stimulates interpersonal attraction. Furthermore, it is assumed that, because of the lack of cues in CMC, people are forced to use interactive uncertainty reduction
strategies, such as self-disclosure and question asking. Several scholars have suggested that the increase of these strategies enhances interpersonal attraction (Bargh, McKenna, & Fitzsimons, 2002; Collins & Miller, 1994; McKenna, Green, & Gleason, 2002; Walther, 1996).

The main goal of this dissertation is to investigate the effect of online communication on interpersonal attraction and friendships. Several studies have investigated the effect of reduced cues in CMC on interpersonal attraction (e.g., Coleman, Paternite, & Sherman, 1999; Kiesler, Siegel, & McGuire, 1984; McKenna et al., 2002). Most of these studies have found a positive effect of CMC on interpersonal attraction (Bargh et al., 2002; McKenna et al., 2002; Ramirez & Zhang, 2007; Walther, 1995). Although, these studies have made important contributions to our knowledge about the relationship between CMC and liking, there are two important issues that have remained undiscussed.

First, earlier research on the effects of reduced cues has typically compared face-to-face communication with text-only CMC. However, this binary distinction between modes of communication may not reflect the reality of contemporary CMC. Today’s CMC applications are no longer limited to settings which are exclusively text-based or settings which include text and still pictures. They include a variety of cues and present multimedia environments, some only with text, some with text and pictures, others with webcams, and some with real time audio and video. Accordingly, contemporary CMC environments seem to vary from cue-poorer to cue-richer environments. This cue-richness makes the binary distinction between face-to-face communication and text-only CMC seem rather outdated. As a result, it is important to extend our research focus and pay close attention to the differential effects of cue-richer and cue-poorer CMC settings.

A second issue that has largely been neglected in current CMC research refers to the type of relationship between CMC and interpersonal attraction. Earlier research on the effects of text-based CMC on interpersonal attraction has mainly focused on direct relationships between online communication and interpersonal attraction, but has hardly studied the underlying explanations for the results obtained. Therefore, research can explain neither why results differ among studies, nor why online
communication may affect interpersonal attraction. By taking the potential mediators into account it is possible to precisely examine the relationship between CMC and interpersonal attraction and to say more about the intervening processes.

The aim of this dissertation is to fill these lacunae in the literature by conducting four studies. The first two studies focus on IM. The second two studies take a closer look at social network sites. The IM studies are experimental and focus on interpersonal attraction. In these studies, we compare three conditions: face-to-face communication, visual CMC (IM with a webcam) and text-only CMC (IM without a webcam). The studies on social network sites are correlational and focus on interpersonal attraction and friendships. In these studies, we examine how different uncertainty reduction strategies – passive, active, and interactive – affect interpersonal attraction and friendships.

Dissertation Outline

This dissertation consists of four studies, which address two popular CMC applications: Instant Messaging and social network sites. All studies are either published, or submitted for publication. The content of the chapters in this dissertation are equal to the published or submitted papers. Being self-contained, each chapter has its own abstract, introduction, discussion and reference list. This section provides a summary of each chapter.

Chapter 1

The first experimental study investigated the effects of CMC on social attraction. Several earlier studies have investigated this direct relationship, but none of these studies has examined the underlying mechanisms in the relationship between CMC and social attraction. The first goal of this study was to fill these gaps in earlier research by investigating the validity of three potential mediators that may account for the effects of CMC on interpersonal attraction. Based on existing theories in CMC and earlier research, three explanations for the relationship between
CMC and interpersonal attraction were presented and subsequently being tested in an experiment.

A first explanation is that the reduced nonverbal cues of CMC stimulate feelings of similarity (Dubrovsky, Kiesler, & Sethna, 1991), and subsequently interpersonal attraction (e.g., Byrne, 1971). The other explanations are both based on the concept of uncertainty reduction strategies (Berger & Calabrese, 1975; Berger, Gardner, Parks, Schulman, & Miller, 1976). The concept of uncertainty reduction strategies assumes a basic human need to reduce uncertainty about others in social interactions, resulting in communication partners' urge to get to know one another as well as possible. In CMC, communication partners have relatively little information available to reduce uncertainty. As a result, they are forced to ask more questions and disclose more information in order to reduce uncertainty (e.g., Tidwell & Walther, 2002). Both the increase of question asking and the increase of self-disclosure may enhance interpersonal attraction (e.g., Bargh et al., 2002; Walther, 1996).

These explanations were tested in an experiment in which cross-sex pairs were divided among three conditions: text-only CMC (IM without a webcam), visual CMC (IM with a webcam), and face-to-face communication. We chose to compare text-only CMC with both visual CMC and face-to-face communication in this experiment because most researchers assume that the lack of visual cues is responsible for the increased interpersonal attraction in CMC (Cooper & Sportolari, 1997; Walther, 1996; Walther et al., 2001). Because visual cues alone may not be entirely responsible for the enhanced interpersonal attraction in CMC, this experiment investigated how the visual CMC condition differed from the text-only CMC condition and the face-to-face condition with regard to interpersonal attraction and the mediating variables.

In this study, we did not find a significant main effect of experimental condition on interpersonal attraction. However, we did find two important indirect effects, which may further our understanding of the effects of CMC on interpersonal attraction. We found that the CMC-interpersonal attraction relationship was mediated by both intimate self-disclosure and question asking. These hypotheses were supported only when we compared text-only CMC with face-to-face communication. There
was no difference when we compared visual CMC and text-only CMC. Surprisingly, when compared to face-to-face communication, both text-only and visual CMC enhanced intimate self-disclosure and question asking. However, only in the case of text-only CMC did this enhanced intimate self-disclosure and enhanced question asking result in higher levels of interpersonal attraction.

Chapter 2

The second study was an extension of the first one. This study also experimentally investigated underlying mechanisms of the liking-CMC relationships. However, this study did not collect data through self-report measurement, but rather by analyzing the content of the conversations. The first aim of this study was to investigate the validity of four potential mediators that may account for the effects of CMC on liking. These variables were: amount of self-disclosure, depth of self-disclosure, direct questioning, and reciprocity of self-disclosure. All these variables have been shown to be positively related to CMC (e.g., Dietz-Uhler, Bishop-Clark, & Howard, 2005; Tidwell & Walther, 2002) and to liking (e.g., Bargh et al., 2002; Laurenceau, Feldman Barret, & Pietromonaco, 1998).

The second aim of our study was to clarify the relationship between CMC and liking and to establish the effect of visual cues on this relationship. This experiment among unaquainted cross-sex dyads investigated how the visual CMC condition differed from the text-only CMC condition and the face-to-face condition with regard to liking and the mediating variables.

Results showed that there was a significant main effect of experimental condition on liking. People in the CMC conditions liked each other more than people in the face-to-face condition. However, there was no significant difference in the level of liking between the text-only and visual CMC condition. Furthermore, there were also important indirect effects. First, we found that the relationship between CMC and liking was mediated by the depth of self-disclosure and not by the amount of self-disclosure. Second, we found that question asking also mediated the CMC-liking relationship. Both mediated relationships only emerged when we
compared text-only CMC with face-to-face communication. There was no difference when we compared text-only CMC with visual CMC.

Chapter 3

The third study of this dissertation focused on initial interaction on social network sites. Social network sites are usually open or semi-open systems: new members have to register, but everyone is welcome to join. The sites typically allow members to create a personal profile, observe and communicate with other members, and develop and/or maintain friendships with these members (Ellison, Steinfield, & Lampe, 2006). Social network sites belong to the latest generation of CMC environments. Such environments seem to vary along two dimensions: the number of cues (cue-poorer vs. cue-richer) and their openness (one-to-one vs. one-to-many). Social network sites are cue-richer and open CMC environments. Therefore, these sites may have important consequences for the uncertainty reduction strategies that members can use to gain information about a target person in initial interactions, and therefore on interpersonal attraction.

Uncertainty reduction theory (Berger & Calabrese, 1975) assumes that, when strangers meet, their primary concern is to reduce uncertainty and increase predictability of the behavior of the interaction partner. Berger (1979; Berger et al., 1976) has identified three types of uncertainty reduction strategies in offline settings: passive (e.g., reactivity search, social comparison), active (e.g., asking others about the target individual) and interactive strategies (e.g., question asking, self-disclosure). In cue-poor CMC settings, like e-mail and Instant Messaging (IM), interactive uncertainty reduction strategies are the most used strategies (Parks & Floyd, 1996; Ramirez, Walther, Burgoon, & Sunnafrank, 2002; Tidwell & Walther, 2002). Furthermore, there is evidence that interactive strategies encourage interpersonal attraction in cue-poor CMC environments (Antheunis, Valkenburg, & Peter, 2007).

The first aim of this study was to examine which uncertainty reduction strategies members of social network sites use to gain information about a person who they have recently met online. Our results showed that passive strategies were most commonly used: 98.9% of the respondents
reported using one or more passive strategies. In addition, 83.9% reported using one or more interactive strategies. Finally, active strategies were used least frequently. Only 19.7% used one or more active strategies.

The second aim of this study was to investigate, whether and how these uncertainty reduction strategies result in interpersonal attraction. Passive and active uncertainty reduction strategies did not affect the level of uncertainty. However, interactive uncertainty reduction strategies and perceived similarity reduced the level of uncertainty. Furthermore, lower levels of uncertainty increased social attraction. Finally, similarity also enhanced social attraction. As a result, both the relationships between interactive uncertainty reduction strategies and social attraction and between similarity and social attraction were (partially) mediated by the level of uncertainty.

Furthermore, the perceived valence of the obtained information moderated the mediation effects of the level of uncertainty on social attraction. When the evaluation of the obtained information was more positive, the relationship between a low level of uncertainty and social attraction was significantly positive but relatively weak. The more negative the perceived valence of the information was, the stronger the positive relationship between a low level of uncertainty and social attraction became.

Chapter 4

The fourth and final study also focused on social network sites. Social network sites are typically used both to keep in touch with existing friends and to develop new friendships (boyd, 2004; Dwyer, Hiltz, & Passerini, 2007; Ellison et al., 2006). Social network sites, therefore, distinguish themselves from other interpersonal CMC applications, such as MUD’s, e-mail, or IM, which are either predominantly used to communicate with unknown people or to maintain relationships with one’s existing friends (e.g., Gross, 2004). On social network sites, three types of friendships can be distinguished: (a) online friendships, which are developed online and remain solely online; (b) mixed-mode friendships (Walther & Parks, 2002), which are developed online but have extended to other,
offline settings; and (c) offline friendships, which are developed offline and may have extended to online settings.

The first aim of this study was to compare the quality of online, offline, and mixed-mode friendships among users of a social network site, while taking into account the duration of the relationship as a possible moderator. The second aim was to investigate and compare the factors that predict the quality of online, mixed-mode, and offline friendships. Theories and research on offline friendships have yielded several factors that determine the quality of offline friendships. Three determinants have received particular attention in the literature: proximity (e.g., Hays, 1985), perceived similarity (e.g., Reagans, 2005), and social attraction (e.g., Reagans, 2005; Reis & Shaver, 1988). In this study we first investigated whether the level of these three determinants differed among online, mixed-mode, and offline friendships. Subsequently, we compared the relative contribution of these three determinants in the prediction of the quality of the three types of friendships.

Results showed a main effect of type of friendship on the quality of friendship. Post-hoc tests revealed that the quality of offline friendships was significantly higher than the quality of mixed-mode friendships and online friendships. The quality of mixed-mode friendships was higher than the quality of online friendships and lower than the quality of offline friendships. As expected, the quality of friendship indeed improved as the friendship developed over time, regardless of the type of friendship. Although the quality of offline and mixed-mode friendships differed when the overall sample was compared, the quality of these two types of friendship did not differ when compared over time. However, the significant differences between the quality of online friendships compared to mixed-mode and offline friendships remained, even for friendships lasting longer than two years.

Concerning the second aim of this study we also found some interesting results with regard to some determinants of friendship quality. First, as expected proximity was highest in offline friendships, followed by mixed-mode, and online friendships. However, proximity did not affect the quality of friendship in any of the three types of friendships. Second, perceived similarity was the highest in mixed-mode friendships and offline
friendships and lowest in online friendships. There was no difference in perceived similarity between mixed-mode and offline friendships. Furthermore, results showed that perceived similarity affected the quality of friendship in all three types of friendship. The largest effect occurred for online friendships, followed by mixed-mode friendships, and offline friendships. Third, results showed that social attraction was the highest in offline friendships, followed by mixed-mode friendships, and online friendships. The effect of social attraction on friendship quality was the highest for offline friendships, followed by mixed-mode friendships, and online friendships.

Conclusions

This dissertation with its focus on the link between online communication on the one hand and interpersonal attraction and friendships on the other had two main goals. First, it aimed at an examination of the underlying processes between CMC and interpersonal attraction and friendship formation. Second, it focused on contemporary, cue-richer CMC applications, instead of only comparing face-to-face communication with text-based CMC settings. This dissertation provides various new insights into the effects of online communication on interpersonal attraction and friendships. Because each of the four studies in this dissertation is self-contained and has its own conclusions, we now only discuss the main conclusions concerning interpersonal attraction and friendships.

Interpersonal Attraction

To begin with, online communication, or CMC in general, has a positive effect on interpersonal attraction. The most important underlying mechanisms in this relationship are self-disclosure and question asking. We found that both these interactive uncertainty reduction strategies are more often used in CMC than in face-to-face communication. The CMC-induced increased use of both strategies stimulates interpersonal attraction. As far as self-disclosure is concerned, this dissertation makes clear that it is not the amount of self-disclosure, but rather the depth of self-disclosure, that
accounts for the increased interpersonal attraction in CMC interactions. The more intimate information people disclose about oneself, the higher the level of interpersonal attraction.

We found no difference in interpersonal attraction, self-disclosure, and question asking between visual CMC and text-only CMC. This means that it is not the number of visual cues in CMC that affect the level of interpersonal attraction, intimate self-disclosure, and question asking. Consequently, it seems that visual anonymity is not a key factor in the relationship between CMC and interpersonal attraction. However, in face-to-face communication less self-disclosure and question asking occurred than in any form of CMC. It seems that intimate self-disclosure and question asking, which are inappropriate in face-to-face settings, do appear to be appropriate in CMC settings, irrespective of whether visual information is added. The finding that visual anonymity is not a key factor in CMC tentatively suggests that some propositions of existing CMC theories, such as the hyperpersonal theory (Walther, 1996) and the social information processing perspective (Walther, 1992), may need some adjustment.

Moreover, this dissertation shows that the amount of cues is also not a key factor in the relationship between CMC and interpersonal attraction. This conclusion is contrary to Uncertainty Reduction Theory (Berger & Calabrese, 1975), which states that the more information persons have about their conversation partners, the more they are attracted to them. Therefore, it has often been assumed that, in cue-reduced CMC, there are lower levels of interpersonal attraction. However, this dissertation shows that this assumption does not hold. Hence, our studies suggest that it is not the quantity of information that increases interpersonal attraction in CMC. Rather, it is the quality of the information that counts, such as the positive or negative valence of the information. If people gain a lot of information about the conversation partner, but the information is very negative, people will not like that person more just because they have obtained a great amount of information about the person.
Interpersonal attraction is an important determinant for friendship formation. After all, friendship formation usually does not occur without a minimum level of interpersonal attraction. On the basis of our finding that CMC stimulates interpersonal attraction, we can conclude that online communication has a positive effect on friendship formation. Moreover, cue richer and open CMC settings, such as social network sites, do not change this effect. Getting acquainted on social network sites is a new way of online friendship formation as people can use more strategies than in traditional CMC settings to gain information about a person. On social network sites, people can also observe the target person, and sometimes they can even ask friends of the target person about the target person. Although, then, the information gathering is different on cue-richer CMC settings, there still is a positive effect of CMC on friendship formation.

Furthermore, this dissertation showed that the quality of mixed-mode friendships, which originated online and migrated to offline settings, is comparable to the quality of offline friendships. Contrary to some concerns that Internet and online communication might have a negative influence on friendships and social capital (e.g., Kraut et al., 1998; Putnam, 2000), the outcomes of this dissertation suggests that there are positive effects of online communication. After all, if people get acquainted via the Internet, they disclose more personal information and ask each other more questions, which may stimulate interpersonal attraction. Hence, if their friendship subsequently migrates to face-to-face settings, the quality of these friendships will even equal the quality of friendships that started offline. Therefore, the conclusions give no reason to believe that the Internet is an antisocial medium. Rather, it can be helpful in relationship formation.

All things considered, this dissertation has made two contributions to research on CMC and interpersonal attraction and friendship formation. On the one hand, this dissertation is a refinement of earlier CMC research, by examining underlying mechanisms between CMC and interpersonal attraction, and by taking cue-richer CMC applications into account. On the other hand, this dissertation has made an initial contribution to more elaborate research on the effects of extra cues in contemporary CMC.
settings. However, because CMC continues to be an interesting area of work with many challenges – new applications keep on emerging – we should carry on doing research about CMC and interpersonal relationships.

References


Chapter 1


Online Communication, Attraction, and Friendships