Computer-Mediated Communication:

Effects on Relationship Development and Maintenance

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Abstract

The purpose of this comprehensive review is to understand the effect that computer-mediated communication (CMC) have on relationships. While there is no shortage of statistics documenting the progress and adoption of computer usage and Internet access, its impacts on society are as diverse and complex as the individuals who use it. The introduction of the Internet as well as CMC have not only expedited the speed of communication, but also revolutionized relationship formation processes. As electronics device capabilities have also drastically progressed to a point of replacing personal computers, many capabilities that were once bound by a traditional desktop are now readily available in the latest smartphone technology. CMC provides a more efficient, easily accessible, and cheaper alternative to traditional means of communication. Particularly those who are separated by long distances, CMC is essential in relationship maintenance. While CMC is by no means a replacement for face-to-face interaction, it has significantly, and will continue to change the landscape of communication.

Keywords: Computer-mediated communication, CMC, computer-mediated relationships, uses and gratification, diffusion of innovation, online relationship, relationship development, relationship maintenance, social networking, media effects.
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Computer-Mediated Communication: Effects on Relationship Development and Maintenance

The goal of this comprehensive review is to understand how computer-mediated communication (CMC) affects relationships, particularly in how CMC aids the development as well as the maintenance of relationships. With references to diffusion of innovation, and uses and gratification theories, this research aims to examine the effects of CMC on interpersonal and romantic relationships. Chung (2003) posits that CMC is as diverse as its participants; it blurs the line between interpersonal and mass communication, creating new ways for interpersonal relations to occur. Because of the continuing advances in technology, CMC is now more easily accessible and readily available than ever before.

For the purpose of this comprehensive review, I will focus mainly on the impact of CMC on intimate (i.e. romantic) relationships as opposed to platonic and other types of relationships. However, previous literature addressing the impact of CMC on interpersonal relationships that references both intimate and platonic relationship development will be used as references – as there are no limitations or predictions as to what these relationships will become.

Literature Review

History of the Internet

When the Internet was first introduced under the name ARPANET, it was a project developed by the U.S. Defense Department to enable inter-network linking for sharing and exchange data (Leiner et al., n.d.). By the early 1990s, researchers and
sediors have already grasped the basic functions of what the Web can do, and predicted the boundless potential of the Internet, and what it could do for mankind.

According to Leiner et al. (n.d.), in 1962, J.C.R. Licklider of MIT had already anticipated social interaction through a virtual network as a concept that is identical to what the Internet is like today. Licklider had “envisioned a globally interconnected set of computers through which everyone could quickly access data and programs from any site” (Leiner et al., n.d., para. 4). By 1972, the International Computer Communication Conference was ready to unveil the potential of ARPANET to the public. During the conference, the first form of CMC, electronic mail, was introduced to the world (Leiner et al., n.d.).

While there is no shortage of statistics documenting the progress and adoption of computer usage and Internet access, its impacts on society are as diverse and complex as the individuals who use it. Sukovic (2007) writes that recent studies conducted on the effects of Internet in the past twenty years are “showing different and often conflicting results about the influence Internet has on human psyche and emotions” (p. 6). Merkle and Richardson (2000) argue that advances in technology and the emergence of the new medium – the Internet – has changed the Western society’s lifestyle, just like its predecessors the telephone and television have.

**How Internet Changed Communication**

While CMC have coexisted since the introduction of the Web, high-speed Internet in particular, has accelerated the speed of communication, along with the growth of the platforms CMC in which it can operate. Since the 1960s, computers have been used to help match strangers for the purpose of data sharing (Hardey, 2004). According to
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National Telecommunications and Information Administration’s report on the U.S. broadband Internet connectivity, “The nation’s broadband Internet access adoption rate is at an all-time high,” and as of 2009, “63.5 percent (75.8 million) of U.S. households” use high-speed Internet. In terms of having broadband, a sharp increase in the average U.S. households rose from 4.4% in 2000, to 68.2% in 2010 (Digital Nation: 21st Century America's Progress Towards Universal Broadband Internet Access, 2010). As our society progresses towards faster connectivity, so does our dependency on CMC. From personal computers, to laptops, tablets and smartphones, CMC is more accessible than ever before as a result of the decreasing cost for high-speed connectivity, and increasing accessibility for mobile technology.

**Computer-Mediated Communication (CMC)**

The term computer-mediated communication is widely used and adopted by communication scholars. Although the term itself is straightforward and needs little explanation in what its true meaning pertains, December (1997) provides a detailed definition of CMC as “a process of human communication via computers, involving people, situated in particular contexts, engaging in processes to shape media for a variety of purposes” (para. 3).

The introduction of the Internet as well as CMC have not only expedited the speed of communication, but it has also revolutionized relationship formation processes (Tonkin, 2010; Hardie and Buzzwell, 2006; Sukovic, 2007). Some scholars argue that CMC is insufficient in terms of maintaining and developing personal relationships because the lack of visual cues, and that such usage is often restricted to isolated or disabled people (Chung, 2003; Tidwell & Walther, 2002). However, CMC capabilities
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are constantly changing, as technology rapidly expands the functions of what one can do online. At the same time, CMC is also increasing the complexity of online relationships, with software that goes beyond textual communication, such as audio-visual conferencing (Pauley & Emmers-Sommer, 2007). Walther (1996) describes the four elements that are pertinent to the CMC process as “receivers, senders, characteristics of the channel, and feedback processes” (p. 17). Wang and Andersen (2007) add that CMC provides a much wider variety of options when it comes to relational communication.

While psychological as well as behavioral habits of utilizing CMC have also been heavily examined by scholars and scientists alike, the effect of what CMC has on individuals varies greatly, as it is dependent on the different groups of people who use it, and what they use it for (Wang & Andersen, 2007). Merkle and Richardson (2000) posit that regardless if the interaction is occurring over cyberspace or face-to-face, “one could assume that a fundamental tendency toward seeking positive rewards is shared by all individuals engaging in interpersonal relating” (p. 188). Walther (1996) distinguishes the social formation process differences between CMC and face-to-face is the fact that it is not the matter of “amount of social information exchanged but with the rate of social information exchanged” (p. 10). Although initial research claims that messages conveyed through CMC lacks nonverbal cues, with the emergence and increasing popularity of video chatting features as suggested by Pauley & Emmers-Sommer (2007), this opens up doors to future research incorporating nonverbal cues into CMC.

Walther (1996) argues that CMC can sometimes develop deeper connections between users than face-to-face communications, where it can surpass “the level of affection and emotion of parallel face-to-face interaction” (p. 17). He also posits that
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there are three kinds of relationships developed through CMC. The first kind, impersonal
CMC is compared to messages exchanged in a business environment, where the purpose
of these CMC is for getting things done. The second kind is interpersonal CMC, where
the author compares its effect as “reaching out to ‘touch’ someone” (p. 10). Finally, the
third kind is hyperpersonal CMC, which is most pertinent to this comprehensive review.
Hyperpersonal CMC is described as social interactions that are carefully constructed to
manage one’s online presence – particularly through the use of self-disclosure, language,
and textual behaviors. Tonkin (2010) adds that because hyperpersonal CMC are
romantic in nature, this increases the likelihood of developing intimate relationships.
Chung (2003) suggests that the development of relationships over CMC is strictly
dependent upon the way which it is being used.

Traditionally, CMC occurs within an online setting that its access is often
restricted personal computers only. This includes emails, chat rooms, forums, bulletin
boards, multi-user dungeons (MUDs), and instant messenger (IM) (Donn & Sherman,
2002; Wang & Andersen, 2007). As each message is received and answered for, these
communication processes are actions responsible for the formation of new relationships
(Donn & Sherman, 2002).

Before Internet, indirect communication often took days, months, and even years
to establish. Not only was the cost of sending messages costly and time-consuming,
sometimes these messages get lost in the process. From the letters of men serving in the
military in distanced lands to their lovers back home, long-distance communication is
nothing new to the field of communicative studies. However, the emergence of CMC
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after the introduction of the Internet has no doubt made the entire communication process more affordable and convenient (Wang & Andersen, 2007).

The increase of global mobility in conjunction with immigration, military deployment, and international commerce, is also leading to an increase in long-distance relationships (Stafford, 2005; Wang & Andersen, 2007). As traditional means of communication are not easily accessible, CMC becomes the primary medium, offering multiple channels and ways to communicate for such situations.

Social networking sites. With the emergence of social networking sites, CMC has not only become the preferred method of seeking out new interests and reaching out to friends, it has become the primary source for socialization online. As social networking sites become the preferred channel for information exchange and socialization, this adds to the changing landscape for future CMC research.

Since 2011, Facebook accounts for the most time Americans spent online on a single Web brand, with the average close to eight hours per month, more than any other top websites by a long stretch (Report on the top visited US web brands in September 2011, 2011). Social networking sites such as Facebook are designed for relationship maintenance (Stephure, Boon, MacKinnon, & Deveau, 2009). Facebook encompasses instant messaging, bulletin board-like profile pages, multi-media and interest sharing features – all compressed into one giant hub that is linked to a vast social network. It is no surprise that visitors are coming back over and over again for more. Furthermore, with CMC available on the go, it has become easier than ever to stay connected.

Electronic mobile devices. As electronic device capabilities have drastically progressed, many of which that was once bound by traditional desktop computers are
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now readily available in the latest handheld devices. In a sense, smartphones are
miniature computers on the go, now boasting the same capabilities of what was once
restricted to desktop computer technology.

Electronic devices such as smartphones and tablets are paving the new way for
CMC. Users are no longer tied to being physically present within certain proximity of an
available network. Not only do electronic devices enable the ease of access to CMC, but
also changed the way it is accessed. With the proliferation of mobile technology
becoming available to the same geographic availability that was once limited to
cellphones, more people than ever are beginning to use CMC as a mean to stay connected
constantly.

Theories

Uses and gratification. In using the uses and gratification (U&G) theory to
interpret the nature and extent of CMC’s impact on how people use Internet to form,
develop, and maintain relationships, one must draw from the tenets of the theory in its
relations to media. The principle of the theory draws from how an active audience uses
media to satisfy their needs (Katz & Blumler, 1974). Katz, Blumler, and Gurevitch (1973)
extends that the sources of media gratifications “can be derived from at least three
distinct sources: media content, exposure to media per se, and the social context that
typifies the situation of exposure to different media” (p. 514). Katz, Haas, and Gurevitch
(1973) postulate the usage of media as means “to satisfy a variety of needs arising from
social roles and psychological dispositions” (p. 179). These needs are classified into five
groupings which can be categorized as follows: 1) cognitive, 2) affective, 3) integrative, 4)
integrative function, and 5) escape/tension-release. Of these five categories, affective –
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the “needs related to strengthening aesthetic, pleasurable and emotional experience”, and integrative function – the “needs related to strengthening contact with family, friends, and the world” (p. 166-167), can be used to understand how U&G relates to the usage of CMC as a mean to gratify those needs.

**Diffusion of innovation.** Since the mass proliferation of Internet, the method of channels used have come and gone as relationships develop or dwindle. In this comprehensive review, CMC have no doubt been adopted as an integral part of the modern day communication process. In understanding that process, diffusion of innovation (DOI) theory is used to identify that adoption process. Rogers (1995) defines diffusion of innovation as a five-step process where a new idea or invention (innovation) is spread to its users or adopters through a period of time. In this process, individuals may choose to either adopt or reject this new idea. These five steps to the adoption process are: 1) acknowledgment, 2) persuasion, 3) decision, 4) implementation, and finally 5) confirmation.

The term *diffusion*, as defined by Rogers (1995), is “the process by which an innovation is communicated through certain channels over time among the members of a social system” (p. 5). Rogers (1995) writes that software component innovations (such as CMC) are harder to track and observe; however, its effects are apparent. As a relationship blossoms, communication frequency naturally increases with it. DOI is part of that process, where individuals either adopt or reject these communication channels. While it is no understatement that the impact of Internet and CMC is nothing short of phenomenal, the influence on “social life, including forming and maintaining romantic and intimate relationships” (Sukovic, 2007, p. 6) is worthy of examining as it has effects
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in both social and psychological on individuals who adopt this innovation as part of their communicative process.

CMC and Relationships

The desire to find companionship grows out of the human need for affiliation (Donn & Sherman, 2002). “Besides maintaining existing social ties, Internet users do rely on the medium to create new relationships as well. As people spend more time online, it is likely that they will use this new medium for tasks such as meeting potential dates and mates” (Donn & Sherman, 2002, p. 107). While the search for that special someone is never an easy task, the Internet opens up doors for individuals who have particular trouble seeking companionship offline. As a society, there has been visible steady increase in those who are using the online medium to find new dates. With the latest online dating statistics conducted by Match.com touting that one out of five relationships are now met online, it is no surprise that it has significantly changed the relationship development landscape (Recent Trends: Online Dating, 2010).

Hardey (2004) writes the experience of finding love online is “characterized by a seamless movement between reading descriptions, writing responses and exchanging messages. This contrasts with the awkwardness, risks and physical embarrassments often associated with offline dating” (p. 212). In a sense, CMC is changing the way how dating has traditionally been, a stark difference in approach when it comes to dating offline versus online. Rosenfeld and Reuben (2011) point out that one of the reasons singles choose CMC as a preferred method in meeting someone new is because dating has become challenging. Particularly for adults, as “most people in their 30s and 40s are already partnered” (p. 25). Stephure et al. (2009) credits this phenomenon with
socioemotional selectivity theory – which posits the idea that as people age, they realize that their time on earth is limited, and this thought process particularly affects those who are single. Therefore, they often resort to online dating as meeting someone offline has become exhaustive, challenging, and even too time consuming. McKenna, Green and Gelanson (2002) suggest that those who are socially challenged in face-to-face environment (visible shyness, social anxiety, inward personality, etc.) can also use CMC to create new opportunities for relationship formation.

McKenna, Green et al. (2002) posits that because it might be difficult for certain individuals to find someone that they have common interests with offline, “the unique structure of the Internet allows individuals to easily find others who share specialized interests,” where it “allows the members to move quickly forward to find out what other key interests they might share and may provide a headstart to relationships” (p. 11). Rosenfeld and Reuben (2011) also write that even though “the Internet has made communications within existing social networks more efficient (as the telephone also did), the Internet also has dramatically improved the efficiency of searching for and finding new people outside of one’s pre-existing social network” (p. 3). With the increasingly affordability of CMC and other electronic device enabled communication, the search for companionship have been expedited and made more convenient. As a result, “since 1995, the percentage of Americans meeting their partners online has risen dramatically, and the percentage meeting through almost all of the traditional ways has fallen” (Rosenfeld and Reuben, 2011, p. 31). This is an evident trend in how CMC has challenged as well as altered the process of relationship development.
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McKenna, Green et al. (2002) also found that the relationships that were developed online tend to progress more quickly in terms of intimacy than those that are developed offline. One of the reasons is that Internet allows individuals to be more open to disclose individuals’ inner self, hence leading to more closeness and intimacy. Whereas, face-to-face communication have other environmental factors such as “gating features,” where physical appearance, social anxiety, and other factors “prevent less physically attractive or socially skilled [individuals] from developing relationships to the state at which disclosure of intimate information could begin” (p. 11). Merkle and Richardson (2000) calls this process an inverted developmental sequence, where individuals move from sharing similar interests and self-disclosure, to face-to-face interaction and physical attractiveness – opposite of traditional face-to-face encounters. However, in Wildermuth and Vogl-Bauer’s (2007) study, users of CMC for intimate relationships understand that are “possible dangers associated with the potential for idealized perceptions and self-enhancement in the online context” (p. 222). As a result, individuals must rely on self-discretion to identify these variables to differentiate these perceptions and enhancement.

For relationships that first developed online, as it blossoms over cyberspace, so does the extent of its meaningfulness to an individual offline (McKenna, Green et al. 2002). There is no doubt that these relationships developed over cyberspace can become social realities. As most relationships develop, so does the amount of communication channels, as well the frequencies of CMC increase (Wang & Andersen, 2007). Wildermuth and Vogl-Bauer (2007) adds that the “utilization of the Internet as a means for developing online romances would significantly shape the nature of romances created
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and sustained” (p. 223). In Wang & Andersen’s (2007) research on CMC and relationship maintenance between friendships, the authors posit that although individuals still prefer to talk via telephone over typical CMC methods such as email or instant-messaging, CMC by no means is any less important than the traditional means of communication. In fact, CMC and in conjunction with face-to-face interaction is essential in maintaining a satisfactory long-distance relationship.

The freedom and the anonymity the Internet provides are often considered as some of the benefits why some people choose to use it to find their significant other. For those who are socially anxious, or inwardly oriented, “the anonymity afforded by the Internet is equally important to both genders in terms of meeting people comfortably” (McCown, Fischer, Page, & Homant, 2001, p. 596). However, for some people, this anonymity can also be a double edged sword, where the threat of potential dangers is unknown.

In terms of relationship development, there is no doubt that CMC have created boundless opportunities for individuals who have had problems with meeting someone offline traditionally. In the study conducted by Rosenfeld and Reuben (2011), the authors found that, “romantic relationships originally formed online are no different in quality than any other relationships, and relationships originally formed online are no more fragile than relationships formed offline” (Rosenfield, 2010, p. 32).

In a sense, CMC has greatly affected and altered the level of intensity, the frequency, as well as the sociability of interpersonal communication, particularly in the field of relationship development. According to Tong and Walther (2011), CMC is crucial to "those in long-distance (geographically and physically separated) and
proximate (co-located) relationships" as technology is an aid to maintain such connections. Particularly for those who are in long-distance relationships, "many of them rely on CMC as a means of communication" (Tong & Walther, 2011; see also Stafford, 2005). However, in a study conducted by Wildermuth & Vogl-Bauer (2007), their research found that “although participants indicated that words online are powerful, many participants acknowledged that online exchanges are not enough to sustain long-term relationships” (p. 218). Despite an indication that CMC allows users to stay connected with each other, face-to-face interaction is still important when it comes to relationship maintenance.

Sukovic (2007) argues that CMC not only can create and maintain existing ties with those whom they have met online; it is also a medium which users can use to maintain offline relationships. In Chung’s (2003) study, he found that “online users generally use various channels such as letters, phone calls or even face to face communication to communicate with their partner, not only CMC” (p. 18). The results of Chung’s (2003) study points to that oftentimes CMC is not the only medium used for relationship maintenance. In fact, once a couple has developed an intimate relationship with each other, chatting over the Internet sometimes is just not enough.

Wang and Andersen (2007) argues that, “once two people are separate[d]… people still disclose to their friends through CMC in order to maintain their relationships” (p. 21-22) despite how far apart they are from each other. However, for those who have developed their relationships online, but are in long distance from each other, the ultimate goal is to reach a solution where the relationship becomes permanently face-to-face (Rosenfeld and Reuben, 2011).
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Diffusion of innovation & uses and gratification on relationship development and maintenance

In order for an idea to be accepted by a society, the user must weigh in on the innovation’s relative advantage, compatibility, ease of use, trialability and observability (Rogers, 1995). The reason CMC have been widely adopted by the masses is because it satisfies all of these factors. Efficient and lightning fast, CMC has not only made communication more accessible for the mass, but also made communication easier than ever before. However, for those who have fully embraced and adopted CMC, there is an increasing amount of studies showing an increasing amount of people are dependent upon staying constantly connected. For some people, they have a hard time dealing with the lack of connectivity once they have become detached. The dependency for staying connected is also in part due to the constant need for digital gratification, where an individual have become increasingly dependent, and in many cases, arguably addicted to such connectivity (Watson, 2010).

Although the majority of the population does not have to worry about checking into rehab for digital addiction, CMC has made communication easier particularly for those who are separated by a great geographic proximity. Modern day lovers living in different countries not only embrace CMC as part of their communication process, they count on it. Users depend on CMC as a mean to satisfy their relational needs to stay connected with each other, but also count it as a means to find love and affection.

Even with its wide adoption and near complete market penetration, critics of CMC have pressing concerns in its impact on face-to-face communication. While relationships can now be maintained strictly online (e.g. gamers, working professionals,
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academic peer-to-peer, intimate long distance relationships, etc.), opponents of CMC express fear of the possibility that it may someday replace real life face-to-face interactions altogether – a prophecy that is more likely to occur in a science fiction movie than in the near future. Whether this is possible in some cases and to what degree CMC can affect face-to-face communication, this warrants further research.

**Conclusion & Discussion**

The purpose of this comprehensive review is to understand how CMC has affected relationship development and maintenance. With the rapid technological advances, CMC makes communication more efficient and affordable. For those who once had trouble finding love offline can now utilize online dating as part of their quest in finding companionship. Regardless of the geographic distances, users can now stay connected as if it was never a factor to begin with. Even for those who are not vastly geographically separated can use CMC as a mean to maintain existing relationships and interpersonal connections (Donn & Sherman, 2002; Wang & Andersen, 2007; Tong & Walther, 2011).

As mobile technology continues to spread across cultures, as does CMC enabled by handheld devices. While such technology have already been fully implemented as part of the communication norm in developed nations, as it becomes more affordable, its presence in less-developed nations will eventually reach the same level of adoption. Users are able to satisfy their relationship needs as well as individual instinctual desires. While CMC is by no means a replacement for face-to-face interaction (Wang & Andersen, 2007), it has already significantly changed communication landscape for the future.
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This comprehensive review is also limited because of a number of reasons. For one, due to the nature and broadness of what CMC now encompasses, much of the subtopics were not included in this review. For example, there are a growing number of studies focused specifically on extramarital affairs and eroticism initiated and conducted through CMC (McCown, Fischer et al., 2001). The effects of this communication have significant social as well as psychological impact and consequence. Also, there are limited studies available on audio-visual conferencing CMC. This new communication channel allows users to see and hear cues that was once restricted to face-to-face interactions. Further research within this field is not only is worthy of examining, but is also pertinent to the future of communications studies as well.

Future studies should also examine the impact of CMC and social networking sites. With social networking sites becoming integral parts of our personal identity both online and offline, scholars should examine the effects of how electronic-device enabled communication has perpetuated these changes from traditional communication mediums. Particularly incorporating mobile technology into the equation, what will the future of CMC and communication research will be like, and under what conditions will face-to-face interaction will no longer be necessary?
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