The Impact of Internet Technologies on Primary and Secondary Romantic Relationship Development

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This study examined the impact that changes in Internet-based technologies have on romantic relationships developed exclusively online. Thirty-six participants completed the 44-item Online Relationships Questionnaire. Participants were then divided into three categories based on self-reported media preference: asynchronous text, synchronous text, and rich media. No significant differences existed on measures of relational confidence or intimacy based solely on media selection. Participants utilizing the Internet to maintain a secondary romantic relationship reported higher levels of relational certainty and greater expectations of future interaction with their online partner than participants involved exclusively in online relationships (i.e., the online relationship was the participant’s only romantic relationship).

Keywords: Communication Technology; Computer-Mediated Communication; Infidelity; Online Relationship Development; Uncertainty Reduction

Computer-mediated communication (CMC) is redefining how people engage in relationships of all types. Considering the pervasiveness of email, Internet chat programs, electronic bulletin boards, and Internet video- and teleconferencing, it is apparent that CMC is common.

Perhaps most interesting has been the development of online relationships (e.g., Anderson & Emmers-Sommer, 2006; Walther, Loh, & Granka, 2005). Despite negative perceptions, several studies indicate that online relationships are common.
Stafford, Kline, and Dimmick (1999) reported that 61% of respondents who used the Internet at home maintained some interpersonal relationship via CMC. Parks and Floyd (1996) found that two thirds of newsgroup users maintained a personal relationship with someone they had corresponded with online. Parks and Roberts (1998) reported that 94% of respondents indicated they had formed and maintained a relationship with someone via CMC. Anderson and Emmers-Sommer (2006) found that individuals satisfactorily maintained online, romantic relationships void of non-online contact.

Despite the popularity of online dating services, it has been noted that online relationships are possibly the least understood and studied relationship type (Bonebrake, 2002). Of interest is how online romantic relationships are developed. Further, given many individuals develop online relationships that are sometimes secondary to their primary relationship, it is of interest if the pathways of development vary according to whether the relationship is primary (i.e., the online relationship is the individual’s only romantic relationship) or secondary (i.e., the individual is also involved in a face-to-face [FtF] romantic relationship) and according to which medium is used (i.e., synchronous text, asynchronous text, or rich media).

The Advent of “Real” Online Relationships

One argument is that CMC does not provide enough cues for partners to develop a relationship (e.g., Tidwell & Walther, 2002). Critics pointed to the obvious lack of nonverbal cues, vocal cues, physical proximity, and physical attractiveness (see Riva, 2002). Yet, individuals can develop relationships online (e.g., Anderson & Emmers-Sommer 2006; Walther et al., 2005).

Tidwell and Walther (2002) explored the possibility that uncertainty-reduction and information-seeking behaviors propel computer-mediated relationships to increased intimacy. Although these factors did increase intimacy in laboratory encounters with strangers, these behaviors might only be effective in initial interactions. Studies have demonstrated that as online relationships develop, partners reported using non-Internet-based channels to interact (e.g., Parks & Roberts, 1998).

Technology could change the way individuals interact with one another online. Instant-message programs are now common applications used by millions. Individuals also use chat software, thus possibly changing the complexity of online relationships. Perhaps the most substantial change in online communication is the increasing use of audio-visual (AV) conferencing software. Voice over Internet protocol (VOIP) allows people to talk online as if they were on a telephone and is one of the fastest-growing Internet technologies available. In AV environments the vocal and nonverbal cues absent from conventional CMC forms are part of the interaction.

Theoretical Frameworks

Uncertainty-reduction theory

Uncertainty-reduction theory (URT; Berger & Calabrese, 1975) is a particularly appropriate perspective as it relates to CMC. URT posits that the major goal in
relationship development is to increase the level of partner certainty. Interactants engage in passive, active, or interactive strategies to reduce uncertainty.

Uncertainty reduction and reciprocal self-disclosure might be even more prevalent in CMC than in FtF interactions (Parks & Floyd, 1996). Joinson (2001) reported that chat-based CMC sparked more participant self-disclosure in a laboratory interaction than FtF communication or video-conferencing. Ben-Ze’ev (2003) also reported that because “emotional self-disclosure is more important to the experience of intimacy than factual self-disclosure . . . online relationships often have a higher degree of intimacy than offline relationships” (p. 457). The nature of online relationships may increase self-disclosure and promote tactics that reduce relational uncertainty. Thus, in the absence of sensory input available in FtF interactions, uncertainty reduction (via self-disclosure) assumes primary importance in relationship development.

Uncertainty reduction is also fueled by the possibility of future interaction. For example, after viewing photographs of a female target, individuals that were anticipating future interaction with the target rated her as significantly more sociable than those not anticipating any contact with the target (Berger & Douglas, 1981). As it relates to CMC, Walther (1994) reported that anticipation of future interaction was a stronger predictor of satisfactory relational communication than was channel selection.

Also driving uncertainty reduction in relationships is the value of rewards attainable from the target individual (Berger, 1988). URT posits that until uncertainty in a relationship is reduced to the point that a common relational exchange is developed, relational partners will not actively assess rewards and costs in their relationship (Berger). In the case of romantic dyads, Berger argued that these and other uncertainty-arousing situations in relationships can create a certainty/uncertainty dialectic. On one hand, individuals want to be certain that their partner will be stable and committed to the relationship, but there is also a level of excitement involved in the process of uncertainty reduction. Taken together, anticipation of future interaction and positive relational outcomes, as well as the desire to continue uncovering novel information about a relational partner, lead to the following hypothesis:

H1: Anticipation of future interaction with an online partner is associated with greater reported uncertainty reduction in relationships.

The three aforementioned uncertainty-reducing strategies exist in a CMC environment, with the addition of extractive strategies (Ramirez, Walther, Burgoon, & Sunnafrank, 2002). In a computer-mediated context, interactive strategies are perhaps the most commonly used because they involve direct communication (e.g., emailing or chatting) with the relationship partner (Ramirez et al. 2002). Active strategies involve acquiring information from a third-party source, a feat that might be easier in FtF interactions than online. Also, there is no mention of active environmental manipulation, perhaps because this strategy is too difficult to implement in cyberspace. Passive strategies are perhaps the most difficult type of strategy to implement in online relationships. Because of the nature of CMC, passive strategies are relegated to silently observing an online chat or receiving a carbon copy of an
email message (Ramirez et al. 2002). The newest strategy available to online interactants, extraction, involves using an online search engine or searching the archives of a newsgroup to discover publicly displayed information about the target. Ramirez et al. (2002) compare this strategy to a “personalized background check” (p. 220) that can be performed before interactions with the target ever begin.

While research has confirmed the notion that intimate relationships can develop online, the majority of this research has been done in the context of text-based environments (such as newsgroups). As Ramirez et al. (2002) indicated, the majority of interaction in these types of environments would be considered interactive uncertainty-reduction strategies. What is not certain is how the inclusion of additional channels (e.g., audio or video feeds) impact which types of strategies (active, passive, interactive, or extractive) are used.

**Media Richness in CMC**

Media richness theory (MRT; Daft, Lengel, & Trevino, 1987) is one of the first comprehensive theories to examine the relationship between a message’s content and its medium. Daft et al. identified different media as rich or poor based on four criteria: feedback, presence of multiple cues, language variety, and personal focus. The theory also addresses message equivocality. Daft et al. hypothesized that highly equivocal messages should be transmitted through the richest possible medium while less equivocal messages, through any medium.

Media richness theory has also been successfully applied in interpersonal contexts. Harwood (2000) examined grandparent-grandchild communication and found that even in strictly interpersonal relationships, certain media could be identified as richer and were utilized for different purposes in maintaining relationships. Empirical support for the theory is mixed, however. D’Ambra, Rice, and O’Connor (1998) reported vast differences in the rated “richness” of five different types of media used commonly in the workplace: face-to-face, email, memo, telephone, and voicemail. Of these, email scored as one of the poorest media in terms of richness (second only to memos). Raters indicated that FtF communication is almost twice as rich as email, and telephone was also rated as significantly richer than email. While these results may lead to the assumption that richer media yield more positive relational outcomes, much of the research on CMC conflicts with this notion. CMC has a number of features that make it inherently unique and worthy of exploration in the discussion of interpersonal relationships maintained via CMC.

**Theoretical Contexts for CMC**

The most useful model for the present study is the social identity/deindividuation (SIDE) model (Lea & Spears, 1995). The SIDE model argues that people’s behaviors are less individualized and more conformant to prevailing group norms or behaviors in cyberspace (Postmes, Spears, & Lea, 1998). In CMC, identifiers (e.g., race) aren’t apparent. Thus, individuals’ behaviors often mirror those of the larger social group.
Spears, Lea, Corneliussen, Postmes, and Haar (2002) found that participants in an AV condition were less likely to agree with the group’s prevailing negative position whereas anonymous chatters were more likely to publicly agree with the group’s negative evaluations of out-group individuals. Postmes et al. argued that “cyberlove, electronic communities, and other examples of virtual togetherness” support the notion that the deindividuating effects of CMC help to make cyberspace a boundary-free social medium (p. 698).

In addition to the SIDE model, Walther (1996) has labeled CMC as a “hyperpersonal” medium. Hyperpersonal communication refers to “forms of interaction that exceed what we may accomplish FtF in terms of our impression-generating and relational goals” (p. 28). As the SIDE model argues, users are careful to construct messages that coincide with the prevailing group norms, creating a level of socially desirable, partially anonymous interaction. The receiver then takes these messages and interprets them in light of their favorable in-group evaluations. The final outcome of this interaction is that individuals form a somewhat unrealistic, positive impression of their relationship partner. This problem is compounded in traditional CMC environments (such as asynchronous chat or email) because with these types of media it is most likely that senders will craft a careful message that conforms to the prevailing group standards, and that receivers will evaluate the message by projecting their favorable in-group attitudes onto the receiver. With the technological advances in CMC, it is uncertain how new technologies will impact the hyperpersonal nature of CMC.

**Unique Properties of CMC**

Research to date suggests that Internet technologies are likely to change the impression-formation processes proposed in the SIDE model and in Walther’s hyperpersonal approach. Regardless of media selection, research demonstrates that people form fewer impressions of others while interacting online; however, these impressions are often stronger and more enduring (Hancock & Dunham, 2001). Other research on the process of impression management suggests that online interactants are more honest and show less social concern (Joinson, 2001). Joinson allowed one group of participants to communicate over computers with AV capabilities. As with the aforementioned Spears et al. (2002) study in which participants could see the person they were chatting with FtF, the AV condition yielded the lowest amounts of self-disclosure. In perhaps the most revealing study, Walther, Slovacek, and Tidwell (2001) recruited online dyads and asked them to include personal photographs in their communication. Couples that had been in long-term contact experienced less attraction and affection when the picture was included. Results from these findings suggest that the anonymity inherent in online relationships may be a significant force in reducing uncertainty and developing emotional intimacy. In addition, these studies imply, though none directly demonstrate, that additional audio or visual cues may have a negative impact on CMC.
Primary and Secondary Online Romantic Relationship Development

Individuals can establish online romantic relationships that exist outside of their primary relationship. Extradyadic online relationships might be more discrete than FtF extradyadic relationships, but this idea has received little (if any) research attention. McKinney (1974) argued that extradyadic relationships can induce jealousy in primary relationships, a concept similar to the “secret tests” proposed by Baxter and Wilmot (1984). In addition, many extradyadic relationships in FtF contexts are driven by physical attraction and passion (Wagner, Remien, & Carballo-Dieuguez, 1998). In traditional CMC, the lack of physical cues might hinder the desire to establish secondary romantic relationships in cyberspace. If people are utilizing CMC to engage in secondary romantic relationships, the inclusion of physical and vocal attributes might serve the same functions in cyberspace that they do in FtF interaction.

Hypotheses and Research Questions

The unique features of online-relationship development strongly imply that the motivation to maintain an online relationship and the rationale for developing an online relationship are different when compared to FtF relationships. The incorporation of new technology in an online setting may actually hinder the development of these unique relationships more than it helps. Following that rationale, the following hypotheses are advanced:

H2: Interactants who utilize richer media report greater levels of uncertainty in their online romantic relationships than individuals who utilize less-rich media.

H3: Interactants who utilize richer media in online romantic relationships report lower levels of self-disclosure than individuals who utilize less-rich media.

H4: Interactants who utilize richer media in online romantic relationships report lower levels of intimacy than individuals who utilize less-rich media.

H5: Interactants who utilize CMC to maintain secondary romantic relationships use richer media than interactants who maintain primary romantic relationships via CMC.

In addition, the aforementioned uncertainty-reduction strategies proposed by Ramirez et al. (2002) leads to the following research question:

RQ1: How does the inclusion of additional audio or visual cues in CMC affect the selection of uncertainty-reducing strategies in online relationships?

Some research has also suggested that, in addition to the properties of CMC, some properties of the user might impact the likelihood that individuals will become involved in an online relationship (Parks & Floyd, 1996; Swickert, Hittner, Harris, & Herring, 2002). As such, a more thorough, current analysis of individual factors relevant to the development of online relationships is a useful contribution to the research.

RQ2: What user characteristics most frequently predict involvement in several online relationships?
Method

Participants

Participants were 45 individuals involved in exclusively online relationships (i.e., met someone online, established a relationship but had not met FtF). Participants were recruited through one of two methods. The first 29 participants were recruited online via messages posted in a variety of online newsgroups and chat-based environments. These different online forums were randomly selected from newsgroups and chat rooms that listed under the subjects of “romance,” “relationships,” “love,” or “lovers.” The remaining 16 participants were recruited from communication courses at a large southwestern university. Nine participants indicated that their online relationship was not romantic, thus they were excluded from the analyses.

Of the 36 individuals included in the analysis, 8 were men and 28 were women with a mean age of 25.33 years ($SD = 8.46$). Internet usage ranged from 0 to 150 hours per week ($M = 32.29$, $SD = 29.35$). Twenty-eight participants reported being single, 5 were married, and 3 reported “other.”

Procedure

Participants responded to an online questionnaire consisting of 44 items. Upon completion of the questionnaire, respondents’ submitted their questionnaire to a CGI bin. One of the benefits of utilizing a web-based questionnaire and having the data sent to a Common Gateway Interference (CGI) bin was that participants’ responses remained anonymous. In addition, the data were sent to a secure server at the university, protected from outside intrusion.

Measures

To assess computer use and frequency, five items from Moody’s (2001) 16-item computer-use scale were included to assess participants’ level of familiarity with computers and frequency of use of various Internet programs. Some items from this scale included, “On average, how many times do you communicate via email daily?” and “How many relationships (romantic or otherwise) have you developed online?” Moody did not report reliabilities for this measure. In the present study, reliability for the shortened version was modest $\alpha = .63$.

Participants indicated if they maintained an offline relationship in addition to their online romantic relationship. In addition, participants were asked to indicate the sex of their online and offline partners (if applicable). Following these questions, participants saw a list of eight different Internet-based communication media: email, newsgroups, instant messaging, chat rooms, bulletin board systems (BBSs), video chatting, Internet telephone, and other. Participants ranked each of these different media for both frequency of use and preference. Based on rankings, participants were placed into one of the following media usage categories: asynchronous chat
(n = 9), live chat (n = 18), and enhanced-Internet chat (audio- or video-based communication) (n = 9).

To assess which uncertainty-reducing strategies participants used to gain information about the online relationship partner, a 4-item measure was created that addressed each of the four strategies proposed by Ramirez et al. (2002). Participants were asked to indicate on a scale of 1 (never) to 7 (frequently) how often they engaged in each of the four behaviors. The next three items on the questionnaire were selected items from Walther’s (1994) Anticipation of Future Interaction Scale. Although Walther originally included nine items in the scale, several do not apply to naturally occurring relationships (i.e., What is the likelihood that you might recognize your conversational partner at the student union?). Additionally, phrases such as “conversational partner” or “experiment partner” were changed simply to “partner.” Sample questions included in the present study were, “What is the likelihood that you could have a chance meeting with your partner somewhere?” and “To what extent do you want to meet your partner?” Walther (1994) reported an acceptable reliability of alpha = .78 in the initial study. In the present study, the three-item version of the Anticipation of Future Interaction scale was α = .67, likely due to the eliminated items.

Next, participants completed Clatterbuck’s (1979) 7-item Attributional Confidence Scale (CL7). This measure assessed levels of uncertainty about the partner and relationship. The measure contains items such as “How accurate are you at predicting the values your partner holds?” and “How well can you predict your partner’s feelings and emotions?” The items in this scale were slightly modified as the original scale was designed to test artificial dyads in an experimental setting. As the focus of this study is naturally occurring dyads, phrases such as “experiment partner” or “research partner” were changed to “partner.” Previous tests using the CL7 report a Cronbach’s alpha of .85 (Neuliep & Grohskopf, 2000). In the present study, reliability for the CL7 was acceptable at α = .95.

Following the CL7, participants completed the Breadth Scale from Parks and Floyd (1996). This scale was designed specifically for online relationships and measures the breadth of self-disclosure in the relationship. The Breadth Scale contains 5 items such as, “Our communication is limited to just few specific topics,” (reverse coded) and “Once we get started we move easily from one topic to another.” For the purpose of this study, item 5, “We contact each other in a variety of ways besides the Internet,” has been removed because participants in this particular study must not have contacted each other outside of CMC. Parks and Floyd reported an alpha of .85 for this measure. The 4-item version of the scale was reliable in the present study (α = .81).

The final measure included in the online relationships questionnaire was the Miller Social Intimacy Scale (MSIS; Miller & Lefcourt, 1982). The MSIS is unique from other intimacy scales in that it measures social and emotional intimacy rather than physical or sexual intimacy. Some sample items from the measure include, “How often do you confide very personal information to him/her?” and “How important is it to you that he/she shows you verbal affection?” Some items on the measure were again modified to fit the purpose of this study; questions about
Results

Due to small sample size, the alpha level used for significance testing was set at $p < .10$.

H1 predicted that anticipation of future interaction would positively correlate with greater reported uncertainty reduction. H1 was supported, indicating a significant correlation between anticipation of future interaction and reduced levels of uncertainty in the relationship, $r(34) = .51$, $p = .001$.

H2 stated, “Interactants who utilize richer media report greater levels of uncertainty in their online romantic relationships than individuals who utilize less-rich media.” To assess differences in uncertainty, means on the Attributional Confidence Scale were compared according to media selection (asynchronous text, synchronous text, and rich communication). Results were nonsignificant, $F(2, 33) = .917$, observed power = .301.

H3 proposed that differences in breadth of self-disclosure would exist based on media selection. To test hypothesis three, means on the 4-item breadth scale were compared by media selection. Results were nonsignificant, $F(2, 33) = .019$, observed power = .104. In addition, individual bivariate Spearman correlations were conducted comparing participants’ overall rankings of each of the seven different media and their scores on the breadth scale. The only significant correlation was between increased breadth of self-disclosure and greater reported use of video-based media ($r = .484$, $p = .031$).

H4 argued, “Interactants who utilize richer media in online relationships report lower levels of intimacy in any computer-mediated relationship.” Means on the MSIS were compared according to participants’ media selection choices. Results from this test were significant, $F(2, 33) = 2.68$, $\eta^2 = .14$, $p = .08$. Post hoc analyses were conducted, and Tukey’s Honestly Significant Difference (HSD) test revealed significant differences between users of asynchronous text programs ($M = 7.68$) and synchronous text programs ($M = 8.89$). Users of rich media fell in between the other two groups on reported levels of intimacy ($M = 8.72$).

Additional Spearman correlations were conducted to test the relationships between reported use of each of the seven Internet-based media and participants’ scores on the MSIS. Of these seven tests, the only significant correlation was between greater reported use of video-based media and increased levels of intimacy ($r = .437$, $p = .05$).

H5 stated, “Interactants who utilize CMC to maintain secondary romantic relationships use richer media than interactants who maintain primary romantic relationships via CMC.” A $2 \times 3$ contingency table analysis was conducted with relational status consisting of two groups (online only vs. online and offline partners)
and media selection consisting of three groups (asynchronous text, synchronous text, and rich media). The results of this analysis were significant, Pearson $\chi^2(2, N = 36) = 4.99, p = .08$, Cramer’s $V = .372$. Frequency comparisons between groups revealed that the majority of participants utilizing the Internet to maintain a secondary relationship used email ($n = 5, 50\%$) whereas participants that were only involved in an online relationship reported a preference for synchronous text-based applications ($n = 14, 54\%$). While this trend is of interest, it directly contradicts what is proposed in H5.

Subsequent analyses were conducted to further examine differences between participants that maintained only online relationships and participants that maintained secondary relationships online. A series of $t$ tests were conducted comparing the two groups on the measures of Attributional Confidence, Breadth, Social Intimacy, and Future Interaction. Of these analyses, two were significant. Because of the disproportionate number of people in each group (online-only relationships, $n = 26$, online and offline relationships, $n = 10$), equal variances were not assumed for each of these analyses. First, significant differences emerged on the measure of Attributional Confidence, $t(27.82) = 1.90, p = .07, d = .71$. A subsequent means comparison revealed that people involved in a secondary online relationship reported less uncertainty in their online relationship than people involved exclusively online, $M = 88.41 (SD = 10.28)$, $M = 79.42 (SD = 17.51)$, respectively. Significant differences also emerged on the Anticipation of Future Interaction Scale, $t(27.68) = 1.81, p = .08, d = .67$. As with the means on the Attributional Confidence Scale, individuals that maintained a secondary relationship online had a higher overall mean on the Future Interaction Scale than did participants that had only an online relationship, $M = 6.10 (SD = .82)$, $M = 5.42 (SD = 1.38)$, respectively.

RQ1 inquired about the relationship between media selection and uncertainty-reducing strategy. A series of $3 \times 3$ contingency table analyses were performed. For each of the uncertainty-reducing strategies, participants ranked their frequency of use on a 1 to 7 scale. These rankings were subsequently collapsed into reports of little to no use (1–2 on the scale), moderate use (3–5), or frequent use (6–7). The frequency scores were cross-tabulated with participants’ reports of their preferred online media. In each of the four tests (extractive, passive, active, and interactive), results of the Pearson chi-square test were nonsignificant (Pearson $\chi^2 [4, N = 36] = 7.07, p = .132$ [Cramer’s $V = .313$]; $6.26, p = .180$ [Cramer’s $V = .295$]; $5.64, p = .128$ [Cramer’s $V = .280$]; and $5.57, p = .233$ [Cramer’s $V = .278$]; respectively). In part, this trend was due to the overwhelming preference of interactive communication in online relationships. 72% of respondents ($n = 26$) reported frequent use of direct communication with their online partner. The second most frequently reported strategies among this sample were the passive strategies with 13.9%, followed by the active and extractive strategies with 8.3% each. In order to evaluate any additional possible between-groups differences, all of the noninteractive strategies were collapsed into one category. A $2 \times 3$ contingency table analysis was performed with two different strategies (interactive and noninteractive) grouped according to the three media categories. The result of this test was nonsignificant,
\[ \chi^2(2, N = 29) = 2.84, p = .241. \] These results suggest that, regardless of media selection, there is an overwhelming preference for interactive communication online.

RQ2 asked, “What user characteristics most frequently predict involvement in several online relationships?” To assess which characteristics were most frequently associated with involvement in online relationships, several items from the Moody (2001) computer-use inventory were included in a multiple linear regression. Specifically, participants’ reports of hourly Internet usage per week, email frequency, chat frequency, and the number of people they used Internet-based communication to maintain contact with were entered as predictors of the number of relationships participants had initiated online. Results from the regression were nonsignificant, \( R^2 = .07, F(4, 31) = .58, \) observed power = .275. Overall, the factors entered into the regression accounted for only 7% of the variance in the number of relationships participants had begun online.

To determine if any individual factor was correlated with an increased likelihood of involvement in multiple online relationships, individual pair-wise correlations between each of the factors and the number of relationships formed online also were conducted. The results of Pearson correlations between the number of relationships started online and weekly Internet usage, email frequency, chat frequency, and total number of Internet-based contacts were all nonsignificant (\( r[36] = .074, .011, .156, \) and .174, respectively). Far too little variability existed in participants’ reports of their online activities and their likelihood of starting online relationships. In the present study, 78% (\( n = 28 \)) of participants that indicated involvement in an online romantic relationship were female, which is similar to Park’s and Floyd’s (1996) finding of 72%.

**Discussion**

URT (Berger & Calabrese, 1975) emerged as a very useful theory in explaining and predicting the nature of online relationships. A very strong, positive correlation emerged between anticipation of future interaction and levels of uncertainty reduction in the relationship. Overall, this correlation was the most convincing finding of the analyses performed in this study. Walther (1994) reported that anticipation of future interaction was a more salient predictor of uncertainty reduction than channel selection, and the results from the present study support that claim.

Another major premise of URT corroborated by the current findings is the use of various uncertainty-reducing strategies online. Participants indicated an overwhelming preference for interactive communication regardless of their primary media selection. Ramirez et al. (2002) found that the majority of participants utilized interactive strategies while engaging in text-based online communication. The results from the present study support this while expanding its scope to several newer communication technologies.

It is not surprising that interactive strategies are the most frequently used by people involved in online relationships. Berger and Calabrese (1975) argued that, while passive and active strategies may be useful to initially gain superficial
information about someone, the majority of self-disclosure and relationship formation occurs through interactive communication. In an online environment, the focus of communication is geared toward the exclusive use of interactive strategies. With the pervasiveness of inherently personal media such as email and instant-messaging programs, other strategies (i.e., passive and active strategies) are far more difficult to utilize online.

MRT (Daft et al., 1987) received only modest support. Overall, media selection does seem to play some role, but results are certainly not conclusive enough to make claims about the full impact of media selection in the development of online relationships.

In the cases of H3 and H4, media selection seemed to somewhat impact participants’ reported breadth of self-disclosure and level of intimacy. Only one significant correlation was found; a positive, linear relationship existed between participants’ reports of self-disclosure and intimacy and increased frequency of use of video-chat programs. Based upon the high levels of intimacy present in online relationships that has been revealed in previous research, negative relationships between media richness and breadth of self-disclosure and intimacy were expected, respectively. Interestingly, results disconfirm both of these hypotheses and suggest that the opposite trend might be true. Specifically, what is suggested is that online media that approximate FtF communication might actually produce the most positive relational outcomes in terms of both relational intimacy and breadth of self-disclosure. Despite the small sample size, fairly strong correlations emerged between each of these relationship factors and greater reported use of rich online media. More research with a larger sample must be done to determine the full impact that rich media has in the development of naturally occurring online relationships.

In further examining H4, significant between-groups differences emerged on participants’ reported levels of intimacy. Overall, participants who used primarily asynchronous text applications reported the lowest levels of intimacy, users of synchronous text programs reported the highest levels of intimacy, and users of rich media reported levels of intimacy that fell between the other two. These results provide some modest support for the principles of media richness. According to MRT, a positive, linear correlation should exist between media richness and relational intimacy such that increasingly richer media types produce significantly more intimate relationships.

A few possible explanations can be offered for the lack of a strong relationship between the results of the present study and the principles of MRT. The most likely explanation is that the present sample was simply too small to fully represent the differences that media selection might create in online relationships. Another possibility is that a sort of “intimacy plateau” exists in online relationships. The only discernable differences in online communication might exist only between the least-rich media (i.e., email) and all other types of media, whether synchronous text, voice-over-Internet, or video chat. The differences between moderately rich and rich Internet-based media might simply be too small to detect.

In examining the participants in the present study, there is one key factor that may help to explain, at least in part, why the impact of rich media is not as conclusive as
the impact of URT. Among this sample, there was an overwhelming preference for synchronous text-based applications such as chat programs or instant messaging. With over half of the sample reporting that they primarily used instant messaging or chat programs to contact their online partners, it is not difficult to see how between-groups differences might be difficult to detect. Until other media (i.e., voice-over-Internet or webcams) become more common, more accessible, and simpler to use, synchronous text-based programs are likely to continue to dominate the online landscape. In most cases, these programs are free to Internet users with a connection and require far less computer skill and bandwidth than do more complex media.

Some of the most interesting results obtained came from participants that indicated that they were maintaining different relationships online and FtF. H5 predicted that individuals in such situations would prefer using richer media to contact their online partner because of the instant gratification that such encounters would provide. H5 was not supported as the opposite trend was suggested: people using the Internet to “cheat” on their FtF partner reported using email as their primary means of contact. In such situations, the use of email is actually a very logical choice. Email is much easier to conceal than other Internet media, especially when physical hardware (such as a video camera) is involved. The ubiquity of email is also another factor that helps to explain why it could be the preferred method of contact for online cheaters. Virtually all Internet users have email, and it is not uncommon for people to have multiple email accounts. Overall, email is simple, common, and discrete, making it a logical choice for individuals involved in online affairs.

Perhaps the most interesting finding obtained from the present study was that participants involved in a secondary online relationship indicated a very high level of familiarity with their online partner. Compared with individuals involved in only online relationships, participants involved in secondary online relationships indicated a higher level of attributional confidence. Surprisingly, individuals involved in secondary online relationships indicated greater levels of certainty in their relationships than individuals that indicated that their primary (and only) romantic relationship existed online. While not conclusive, a reasonable explanation for this finding can be derived from the impact of projection in online relationships. As noted in the SIDE model (Lea & Spears, 1995) and in Walther’s (1996) definition of hyperpersonal communication, a great deal of individual anonymity exists online. Online communicators have a great deal of freedom in establishing their “identity” and in interpreting the identity of other individuals. If dissatisfied in their FtF relationships, people may turn to the Internet to establish a relationship that, at least in part, is based upon their own ideals of a satisfying relationship. In reality, what fuels the certainty in these secondary online relationships is not actually self-disclosure as much as dissatisfied individuals’ idealized projections of a caring online partner.

In addition to familiarity, individuals engaging in secondary online relationships reported greater anticipation of future interaction than individuals involved in only online relationships. Given the nature of these participants’ secondary relationships and their increased perceptions of certainty, it is not surprising that they would anticipate interaction with their online partner. One of the prevailing components
of URT is the reciprocal relationship between interaction and uncertainty; so theoretically speaking, the relationship makes a great deal of sense.

The final area of exploration in the present study was the individual-user characteristics associated with the development of online relationships. Parks and Floyd (1996) found that a number of user characteristics were correlated with involvement in online relationship, specifically long-standing participation in a newsgroup. In the years that have passed since this study was completed, the nature of Internet communication has changed dramatically. Present findings indicated that email and instant-messaging programs have replaced other domains in online dominance. Despite the clear shift in preferences, no discernable relationships existed between the use of specific Internet communication technologies and the likelihood of involvement in online relationship. With the increased ease and accessibility of Internet technologies, coupled with the proliferation of choices in communication media, the lack of a strong correlation is not surprising. As the Internet continues to become more commonplace and technologies continue to become simpler, it is likely that individuals will utilize even greater numbers of different Internet-based communication media in the future.

Limitations

The biggest limitation to the present study was the lack of participants, despite tireless efforts to recruit online for three months. In future studies, broadening the scope of the study to make more people eligible, establishing a working knowledge of Internet communities, and offering incentives for participation might help to increase participation.

One final challenge in recruiting members of this community was the problem of selection bias in recruiting. As with other studies, the recruiting method used in the present study undoubtedly catered to the selection of individuals high in intimacy and self-disclosure. Individuals who frequent the sites used to recruit for this study are very likely to be involved not only in their individual online relationship but are a part of a larger Internet community that shares their experience and supports their relationship. In addition to high-reported intimacy, the recruiting method might help to explain why a disproportionate number of women participated in the present study.

To increase power and overcome the small sample size, all results that were significant at the $p < .10$ level were included. Given the problems related to a small sample size, the number of tests that exceeded the .90 confidence level is somewhat remarkable. In subsequent research, expanding the sample size to increase power would be valuable.

Directions for Future Research

Three very clear directions for future research emerged from the present study. The first of these directions is the viability of URT (Berger & Calabrese, 1975) as a valid theoretical framework for the process of online relationship development. With
increased study, it seems likely that the tenets of URT will be insightful in studying online relationships.

More research also must be done to understand the full impact that media richness has on the development of online relationships. As technology continues to advance and as more people utilize rich media in establishing and maintaining online relationships, the inquiry into the impact of rich media should become more salient and also easier to establish.

Finally, some very surprising trends emerged in this study regarding differences between participants involved in exclusively online relationships and participants involved in both FtF and online relationships. While the SIDE model and hyperpersonal communication are theoretically plausible explanations, no real systematic inquiry was done to explore the nature of these trends. With some effort, secondary online relationships could prove to be a fascinating area of interpersonal relationships that is likely to expand rapidly as technology continues to change.

Notes

[1] The following is a list of places contacted to solicit participants:
   alt.i-love
   alt.i-love.alt-config
   alt.i-love.alt-config.not
   alt.i-love.alt-edgar
   alt.i-love.alt-esada
   alt.i-love.the-beet-man
   alt.i-love.you-all
   alt.i-love.you-all.so-much
   alt.i-love.you-all.so-much.it-make-me.want-to-puke
   alt.support.girl-lovers
   alt.romance
   alt.romance.chat
   alt.romance.conflict-of-interest
   alt.romance.conflict-of-interest.poetry
   alt.romance.unhappy
   alt.writing.fiction-romance
   de.talk.romance
   www.december.com*
   www.askheartbeat.com*
   www.eharmony.com*
   www.match.com*
   www.matchmaker.com*
   www.lovingyou.com
   www.icq.com

*These websites refused to offer assistance in recruiting participants.
From the beginning, the population of individuals eligible for participation—individuals involved in romantic, online relationships that had not met their partner face-to-face—was small and very difficult to find. Several individuals responded to recruitment postings by reporting that they would have participated in the study if they had not already met their partner. In addition, postings to newsgroups and chatrooms proved completely ineffective in soliciting participants. Postings to unmonitored online forums proved more effective, but after several weeks of postings, there were still not enough participants included in the study. At least part of this can be attributed to the fact that no incentive was offered for participation in the study. To correct this problem and to obtain enough participants, the study was made available to undergraduate students for extra course credit, but, of these, several indicated that their online relationship was not romantic.

References


