This study examines how email is utilized to enact maintenance behaviors in interpersonal relationships and explores whether geographic distance between individuals affects this process. Two hundred twenty-six college students accumulated personal email messages over a one-week period. These emails were coded using Canary and Stafford’s (1994) maintenance strategy topology. Results indicate that self-disclosure (openness), discussing social networks, and positivity were the main categories found in email to family members and friends. For romantic partners, the most common categories were assurances, openness, positivity, and discussing social networks. Romantic partners and family members were more likely than friends to use assurances, and family members were more likely than romantic partners to refer to the social network. There were few differences between geographically close and long-distance interpersonal relationships.


Introduction

Much research has examined how relationships form over the Internet, but far fewer studies have examined how individuals use this medium to maintain relationships
that originally began face-to-face (Boneva, Kraut, & Frohlich, 2001; Stafford, Kline, & Dimmick, 1999). Cummings and Kraut (2002) claim, “[T]he growth in the number of Americans online means that people can use the Internet to keep in touch with a larger proportion of their friends and relationships” (p. 229). When people in the United States were recently asked how often they used the Internet on a typical day, 56% reported sending or reading email, 10% reported sending instant messages, and 9% reported using an online social network like MySpace or Facebook (Pew Internet, 2007a). The present study examines how college students maintain interpersonal relationships utilizing email and makes three contributions to the literature on computer-mediated and interpersonal communication: 1) it expands work on relational maintenance beyond face-to-face interaction by examining how email is utilized to enact maintenance behaviors, 2) it examines relationships that originated face-to-face, comparing email use in long-distance and geographically close family, friendships, and romantic relationships, and 3) it examines naturally occurring email content in interpersonal relationships, rather than relying solely on self-reports of behavior.

**Literature Review**

**Relationship Maintenance and Equity Theory**

Equity theory is a social exchange theory that can illuminate the strategies that people use to maintain their relationships (Stafford & Canary, 1991), including email (Rabby & Walther, 2003). Equity theory, as applied to interpersonal relationships, holds that people pursue and maintain relationships based on perceived rewards (Stafford & Canary, 1991). Walster, Berscheid, and Walster (1973) defined an equitable relationship as one in which participants perceive that both parties are incurring equal amounts of positive and negative consequences from the relationship. In other words, relationship satisfaction is determined by comparing partners’ outcome ratio, or rewards, to their input ratio, or costs (Canary & Stafford, 1992; Walster, Berscheid, & Walster, 1973). If the costs outweigh the rewards, the relationship is said to be inequitable. Stafford and Canary (1991) state that people will continue in relationships they find rewarding: “As their relationships develop, persons invest time, energy and other resources, and expect reciprocation on such investments” (p. 219).

Several researchers have applied equity theory to the study of relational maintenance and interpersonal relationships. For example, Stafford and Canary (1991) drew upon equity theory in their development of a relationship maintenance typology. The researchers identified five maintenance strategies: positivity, assurances, openness, sharing tasks, and social networks. Canary and Stafford (1992) explored the role of equity in romantic partners’ maintenance strategies and found that couples in equitable relationships used more maintenance strategies than those in less equitable relationships.

Because equity theory suggests that people are motivated to maintain a relationship to the extent the relationship is equitable and rewarding, email communication
would appear to be one way to increase equity, particularly in long-distance relationships. As Rabby and Walther (2003) note, email affords people an inexpensive and convenient way to keep the relationship in existence, to be open, and to accomplish goals. Additionally, email and other forms of computer-mediated communication (CMC) offer people the ability to communicate more strategically than they might in face-to-face interactions (Walther & Parks, 2002). Thus, email can provide a rewarding medium for maintaining relationships.

College Students and Email
There are several reasons to focus on college students when examining how email maintains interpersonal relationships. One reason is that college students have greater access to the Internet because email access is free on most college campuses (Odell, Korgen, Schumacher, & Delucci, 2000). Therefore, college students use the Internet more than the general public. Seventy-two percent of college students report checking email at least once a day (Pew Internet, 2002a).

Second, college is a time when many individuals leave friends and family behind to attend school, potentially rendering many important relationships long-distance. Tognoli (2003) found that students whose families were further away reported more homesickness than those whose families were geographically close. Staying in contact through email and phone calls can combat homesickness (Tognoli, 2003). The cheap, convenient channel of email may provide students with more opportunities to maintain and receive support from long-distance family, friends, and romantic partners. Pew Internet (2004) asserts that 79% of adult respondents from the United States reported using the Internet for communication with family and friends. In fact, Pew Internet (2002a) claims that current college students are more likely to maintain contact with high school friends because of new communication technologies, resulting in their having greater numbers of social ties than their parents. Therefore, examining email among college students helps explore how the Internet is affecting college students emotionally and socially, an area in need of further research (Pew Internet, 2002a).

Relational Maintenance and Email
Although email is more commonly used than other forms of CMC, it is but one form of technology that can be used to maintain relationships. Text-based systems continue to dominate the Internet (Walther & Parks, 2002). These systems include email, instant messaging, text messaging, chat rooms, social networking sites such as Facebook and MySpace, and other forums for group discussion and activities. Although voice, video, and photographic displays are proliferating, none are as popular as email (Rabby & Walther, 2003). Ninety-one percent of adult computer users from the United States surveyed by Pew Internet reported they use email (Pew Internet, 2007b). However, most scholarly work on relational maintenance assumes that maintaining relationships is mainly done face-to-face, without the use of technology (Stafford et al., 1999).
Email has advantages as a maintenance tool, such as allowing asynchronous communication at the users’ leisure and with lower long-distance expenses (Boneva et al., 2001). In the CMC literature, email has been portrayed as a “lean” medium, used for exchanging “mundane information” in interpersonal relationships (Harwood, 2000, p. 5).

Another advantage of email is that it is not constrained by geographic distance. With a greater number of communication channels available to individuals every day, the impact of geographic distance is growing smaller. Little is known concerning how individuals maintain relationships over distance (Rohlfing, 1995), even though such relationships are common. Eighty-nine percent of college students from the Midwestern United States reported having a close long-distance friend (Johnson, 2001), and 82% reported emailing a long-distance friend at least once in a typical week (Johnson, Haigh, Becker, Craig, & Wigley, 2004).

By definition, an increase in distance decreases the opportunity for face-to-face contact between individuals. Therefore, the frequency and type of maintenance behaviors utilized are constrained. Research on relational maintenance suggests that relationships “erode” without maintenance behaviors (Canary & Stafford, 1994).

At the same time, the belief that frequent face-to-face contact is necessary for relational maintenance is called into question by research on long-distance relationships. Johnson (2001) found that long-distance friends reported fewer maintenance behaviors than did geographically close friends, but the two types of relationships did not differ significantly in reported closeness and satisfaction. Research on long-distance and geographically close romantic relationships illustrates a similar pattern (e.g., Guldner & Swensen, 1995). People expect fewer maintenance behaviors in long-distance relationships (Johnson, 2001). In addition, some of those relationships may have unique features that counteract increased costs. For instance, most familial relationships are permanent; distance does not end those relationships. Johnson, Haigh, Craig, and Becker (2005) suggest that long-distance friends may offer certain relationship advantages, leading to an incentive to maintain both geographically close and long-distance friends. Although costs may be higher in long-distance relationships (e.g., phone bills, postage, travel to see each other), Boneva et al. (2001) claim the use of email may counteract these costs. The use of email potentially allows easier maintenance of both geographically close and long-distance relationships.

A few studies have examined email use and relational maintenance in long-distance relationships. Dainton and Aylor (2002) found that frequency of face-to-face, phone, and Internet contact was related to reported maintenance strategies for long-distance romantic relationships. Rabby (1997) found that ongoing couples’ email messages were characterized by openness and narratives. In a survey of the general public, Stafford et al. (1999) found that email allowed individuals conveniently to maintain contact with relatives who lived at long distances and with children or friends at college. The lack of geographic limitation was seen as one of the main advantages of using email. Other reported advantages to using email
included that it was less expensive, more convenient, quick in nature, and similar to conversation.

Utilizing email may not always result in relationships being maintained. Adams (1998) warns that more potential communication channels, such as email, will not necessarily mean more intimate relationships. If long-distance relationships are based on distorted pleasant memories, then the reality of a friend changing over time may lead to faster deterioration of an otherwise dormant relationship. Especially in romantic relationships, limited communication can cause individuals to edit their mediated communication (O'Sullivan, 2000) and avoid conflict.

Therefore, traditional views of relational maintenance have focused on face-to-face contact (Stafford et al., 1999). As individuals acquire more channels to communicate with intimates, however, such an exclusive focus on face-to-face contact is too limiting. If long-distance relationships are limited in channel choice, they may employ email to fulfill more varieties of maintenance functions. For example, Stafford (2005) suggests that the Internet may be used for “small talk” among geographically close relationships but reflect more intimate content in long-distance relationships. Examining email use in long-distance interpersonal relationships expands research on relational maintenance by questioning both the assumption of the primacy of face-to-face contact and the necessity of frequent maintenance activity.

Off-line Relationships and Email
Most research on interpersonal communication over the Internet has focused on relationships that formed on the Internet. Few studies have examined email use in relationships originating off-line or face-to-face (Stafford, 2005; for an exception, see Baym, Zhang, & Lin, 2004). Baym (2002) discussed the importance of this utilization of the Internet and calls the phenomenon “underexplored” (p. 69). Relationships that develop online can be very different from relationships that developed face-to-face (Adams, 1998), so both need to be examined. Researchers have emphasized the utility of email for maintaining existing family, friend, and romantic relationships (Boneva et al., 2001; Pew Internet, 2002a, 2002b, 2004; Stafford et al., 1999).

Communicating with family
Using email to communicate with family members is common. Pew Internet (2002b) found that 84% of adult respondents from the United States reported utilizing email to stay in touch with family. The report actually found a drop in email frequency to family members in the previous few years, with individuals reporting weekly rather than daily contact. People reported an increase in the likelihood of covering serious topics, including sharing worries and seeking advice. The researchers also found that individuals reported contacting extended family more often than before, a phenomenon dubbed the “clicking cousins effect” (p. 13), suggesting that email “helps extend family networks” (p. 14).
Limited work has examined college students’ use of email to communicate with their family members. Trice (2002) examined college freshmen and found that they reported six emails from their parents a week, whereas “twice a week” was the median reported contact frequency before email was widely used. Trice (2002) wondered whether this increase in contact limited young adults’ independence and separation from their parents. Trice’s study is limited, however, because it only looked at freshmen, and none of the participants had parents who lived more than 100 miles away. This study will examine the actual emails sent between college students and family members over a one-week period. How students use email to communicate with family members may differ based on the geographic distance from the family member.

Communicating with friends

Email can also help an individual maintain friendships. Pew Internet (2002a) found that 72% of college students from the United States reported they used the Internet mainly to communicate with friends, most commonly with friends from high school (35%), followed by friends on campus (24%), and friends off campus (20%).

Individuals may use email differently with long-distance and geographically close friends. Stafford (2005) claims that researchers assume long-distance friendships are less intimate than geographically close ones, because prior research has portrayed frequent interaction as necessary for maintaining friendships (Fehr, 2000). Although most prior studies have advantaged face-to-face interaction when considering frequent contact, Boneva et al. (2001) claim that the low cost of email diminishes the disruption effect distance has on friendships. Boneva et al. (2001) suggest that geographically close friends are more likely to utilize email to make plans, while email is important for long-distance friendships because of its low cost and the ability to maintain friendships that may go dormant otherwise. This study will examine whether college students use email differently when maintaining their geographically close and long-distance friendships.

Communicating with romantic partners

College students also employ email to communicate with their romantic partners. Pew Internet (2002a) found 11% of college students from the United States reported communicating with their romantic partner over email, while Johnson et al. (2004) found that the frequency of email contact with both geographically close and long-distance romantic partners was negatively associated with reported loneliness levels of college students.

How individuals utilize email probably differs for long-distance and geographically close romantic relationships. Knox, Zusman, Daniels, and Brantley (2002) found that 53% of their participants reported emailing their long-distance romantic partner more than once a week. Dainton and Aylor (2002) found that the frequency of face-to-face, phone, and Internet contact were all positively related to reported maintenance strategies and that Internet use was related to trust for long-distance
romantic relationships. Stephen (1986) suggests that long-distance romantic relationships eschew casual talk for more intimate disclosure, so the content of email may also differ for geographically close and long-distance romantic partners. These observations lead to the following research questions:

RQ1: How is email used to enact maintenance behaviors with family members, friends, and romantic partners?

RQ2: Is email utilized differently when communicating with geographically close interpersonal partners versus long-distance interpersonal partners?

RQ3: Is email utilized differently when communicating with family members, friends, and romantic partners?

Email Content
This study adds to the literature by examining actual email content rather than self-reported email behavior. Studies that have examined Internet use in relationships originating face-to-face have focused primarily on self-report. For example, Wright (2004) examined self-reported maintenance strategies in exclusively Internet-based and primarily Internet-based relationships. Wright combined originally online and originally face-to-face relationships in his primarily Internet-based category. Wright (2004), Stafford et al. (1999), and the Pew Internet studies (2002a, 2002b) all depended on self-report measures when exploring how individuals use email to maintain relationships. In addition, most work examining email and interpersonal relationships has focused on frequency of contact (Stafford, 2005). However, reported email use and actual email use may differ. Several researchers, including Hughes and Hans (2001) and Harwood (2000), have called for a focus on the content of messages sent via email between members of interpersonal relationships.

Rabby (1997) analyzed actual email messages that 39 college students sent to long-distance romantic and non-romantic partners. The most commonly used maintenance strategies were openness, narratives, and discussion of joint activities. Participants provided more assurances to romantic partners and wrote about joint activities more frequently to non-romantic partners. A decade later, Rabby’s work opens the door for subsequent examination, especially with a larger sample of participants who provide emails to both long-distance and geographically close partners.

To examine the content of emails, Canary and Stafford’s (1994) typology of maintenance behaviors was utilized. This typology is the most commonly used for examining relationship maintenance. The overarching maintenance strategies fall into 10 categories, including positivity, “attempts to make interactions pleasant” (p. 15); openness, “direct discussions, offering and listening to one another” (p. 15), which includes the subcategories of self-disclosure, meta-communication, advice, conflict, and empathic behavior; assurances, “covertly and overtly assuring each other” (p. 15); social networks, “relying on friends and family” (p. 15); sharing tasks, performing routine tasks and chores in a relationship” (p. 15); joint activities, “how interactants choose to spend time with one another to maintain their
relationship” (p. 16); cards, letters, and calls, “use of various channels to keep contact in relationships” (p. 16); avoidance, “evasion of partner or issues” (p. 16); antisocial, “behaviors which seem unfriendly” (p. 16); and humor “jokes and sarcasm” (p. 16). (See the Appendix for an example of each category taken from the current study. Any identifying information has been altered in all examples from the data.)

Many of the above categories could appear in email content, such as self-disclosure, providing assurances, and discussion of joint activities. Stafford et al. (1999) also noticed similarities between the reports of phone survey participants regarding the use of email and the maintenance categories, such as “keeping in touch” relating to positivity and “exchanging information” relating to openness. In the current study, the categories from Canary and Stafford (1994) are used to examine email content and have been modified slightly to render them more relevant to communication over the Internet (see Appendix).

**Method**

**Participants**

Two hundred twenty-six individuals from a medium-sized southwestern university participated in this study in exchange for course credit. Of these, 118 (53%) were women. The average age was 20.36, with a standard deviation of 1.83 and a range of 18 to 28 years. The sample consisted of 16% freshmen, 33% sophomores, 25% juniors, 25% seniors, and 0.4% graduate students. The majority (79%) were Caucasian, while 8% were African-American, 5% were Hispanic, 2% were Asian-American, 4% were Native American/Pacific Islander, and 2% reported other ethnicities. Only 3% of the participants were married. Of those who were not married, 59% reported current involvement with a romantic partner.

**Procedures**

At time one, participants completed a consent form and received information on accumulating their emails for study purposes. Participants were asked to provide copies of interpersonal (i.e., not work or school related) emails for one week. They were provided manila folders for each person with whom they emailed, as well as a brief survey of nonidentifying demographic information to complete about each person. Participants were given the option of not turning in any emails, especially ones they believed to be too private or sensitive, and they were instructed to avoid submitting emails that described illegal activities. They were instructed to remove all identifying information from emails prior to submitting them to the researchers, rendering all data anonymous.

Participants returned one week later to submit their emails to the researchers. At time two, 216 individuals turned in emails. The emails of 195 individuals were used in the final data analysis; the remaining 21 were deleted for the following reasons: 10 individuals turned in no emails; 11 individuals turned in no emails involving interpersonal partners (family, friends, or romantic partners); seven individuals only
turned in forwards, rather than unique email content (no forwards were included in the data analysis); two individuals were deleted due to other missing data; and one individual was considered an outlier. This individual’s emails were coded into 396 units, which was much higher than the average ($M = 22.91; SD = 25.98$).

**Analysis**

Two co-authors were trained by the first author to unitize the emails. A unit was defined as a thought turn. The two co-authors unitized approximately 15% of the data in common and found a percentage agreement of 88% and a Guetzkow’s (1950) $U$ of .06 (the closer the value of $U$ is to zero, the higher the unitizing agreement). This included unitizing 1,430 units, and having agreement on 1,254 of those units. When disagreements arose, the two co-authors compared their reasons for selecting how the thought turns were identified. Once disagreements were resolved, the rest of the emails were divided and unitized separately.

Next, two other co-authors were trained by the first author to use Canary and Stafford’s (1994) maintenance strategy topology (see Appendix). Each unit was placed into one of the maintenance categories. Before training the co-authors regarding this coding scheme, the first author examined approximately 10% of the data and added several categories, mostly due to the letter format of the emails. The added categories included a general keeping in contact (rather than specifying channel) under “cards, letters, and calls,” and a new “Miscellaneous” category, which included fillers, such as “um;” signing off behaviors, such as “that’s it for now;” and emoticons, such as ;) (see Appendix). In addition, the category of “social networks” was expanded to include news about third parties, such as family members, romantic partners, and those at school or work. The co-authors found that Canary and Stafford’s maintenance behavior categories fit the email content well. The two co-authors coded approximately 15% of the data in common and found 85% agreement, with a Cohen’s (1960) Kappa of .79. After disagreements were resolved, the rest of the data was divided and coded by two co-authors into the modified Canary and Stafford scheme.

**Results**

Individuals reported on all interpersonal partners with whom they corresponded by email for the one week study duration. Seventy-five individuals (38%) reported they had exchanged email with at least one long-distance family member. Thirty-seven (19%) reported that they had exchanged email with at least one geographically close family member. Sixty-three (32%) reported they had exchanged email with at least one long-distance friend. Eighty-six participants (44%) reported they had exchanged email with at least one geographically close friend. Twenty-one individuals (11%) reported they had exchanged email with a long-distance romantic partner. Eighteen (9%) reported they had exchanged email with a geographically close romantic partner. A relationship was defined as long-distance based on a greater than 50 mile
distance between the interpersonal partners, due to the authors’ belief that a distance greater than fifty miles would be associated with difficulty communicating face-to-face on a daily basis. Prior research has distinguished geographically close and long-distance relationships based on ease of daily face-to-face interaction (Guldner & Swensen, 1995).

The first research question asked how email is used to enact maintenance behaviors with family members, friends, and romantic partners. To explore how email is used to enact maintenance behaviors with family members, 71 individuals who exchanged email with their long-distance family member and 34 individuals who exchanged email with their geographically close family member during this week were examined. The top five categories of maintenance behaviors for family members were openness (26% of email units), social networks (24%), positivity (16%), assurances (13%), and discussion of joint activities (7%). (See Table 1 for examples of each from the data.)

To determine how email is used to enact maintenance behaviors with friends, 59 individuals who reported emailing a long-distance friend and 78 individuals who reported emailing a geographically close friend during this week were examined. The top five categories of maintenance behaviors for friends were openness (23% of email units), social networks (22%), positivity (16%), discussion of joint activities (10%), and miscellaneous (9%). (See Table 2 for examples of each from the data.)

To explore how email is used to enact maintenance behaviors with romantic partners, 21 individuals who reported emailing with their long-distance romantic partner and 18 individuals who reported emailing with their geographically close romantic partner were examined. The top five categories of maintenance behaviors

<table>
<thead>
<tr>
<th>Typology Category</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>Openness (26%)</td>
<td>LDR - “We are just so happy you are happy at school”</td>
</tr>
<tr>
<td></td>
<td>GCR - “I don’t feel any older but I realized the other day when I went to church to watch Tim give the sermon that I am getting old.”</td>
</tr>
<tr>
<td>Social networks (24%)</td>
<td>LDR - “School’s fine, work is work, home is great, Adam is alright, and that’s pretty much it.”</td>
</tr>
<tr>
<td></td>
<td>GCR - “How are you and Sam? Hopefully good.”</td>
</tr>
<tr>
<td>Positivity (16%)</td>
<td>LDR - “I hope that you are feeling better.”</td>
</tr>
<tr>
<td></td>
<td>GCR - “Have a great day.”</td>
</tr>
<tr>
<td>Assurances (13%)</td>
<td>LDR - “We love you and miss you, too.”</td>
</tr>
<tr>
<td></td>
<td>GCR - “I love you both.”</td>
</tr>
<tr>
<td>Joint Activities (7%)</td>
<td>LDR - “I would love to see you for spring break”</td>
</tr>
<tr>
<td></td>
<td>GCR - “If you would rather come for lunch Monday after class, that would be fine too.”</td>
</tr>
</tbody>
</table>

1All identifying information has been altered to protect the participants’ privacy.
2LDR = long-distance relationship; GCR = geographically close relationship

Table 1 Example Email Correspondence with Family Members

for romantic partners were assurances (23% of email units), openness (22%), positivity (19%), social networks (14%), and referring to cards, letters, or calls (7%). (See Table 3 for examples of each from the data.)

**Table 2** Example Email Correspondence with Friends

<table>
<thead>
<tr>
<th>Typology Category</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>Openness (23%)</td>
<td>LDR - “Things have been a little crazy for me too. Not really school because I have a pretty easy load but just life stuff.”</td>
</tr>
<tr>
<td></td>
<td>GCR - “How do you suppose I find out what I should change my major to in order to go to physical therapy school? I’m really just confused. Do you think I should go over to the college of Arts and Sciences and ask them?”</td>
</tr>
<tr>
<td>Social networks (22%)</td>
<td>LDR - “How are things at school? Everybody still getting along? How are classes going?”</td>
</tr>
<tr>
<td></td>
<td>GCR - “Have you heard when we are getting our grades back for our papers? Anywho how are your other classes going?”</td>
</tr>
<tr>
<td>Positivity (16%)</td>
<td>LDR - “I hope you have a great rest of the week!”</td>
</tr>
<tr>
<td></td>
<td>GCR - “Have a good day.”</td>
</tr>
<tr>
<td>Joint Activities (10%)</td>
<td>LDR - “Anyways, what are you going to do for Thanksgiving Break, Christmas Break, and Spring Break?”</td>
</tr>
<tr>
<td></td>
<td>GCR - “I’m going to be studying at the library tomorrow night from 6-9:30. If you would like to come, I’d love it.”</td>
</tr>
<tr>
<td>Miscellaneous (9%)</td>
<td>LDR - “I better run.”</td>
</tr>
<tr>
<td></td>
<td>GCR - “Later.”</td>
</tr>
</tbody>
</table>

**Table 3** Example Email Correspondence with Romantic Partners

<table>
<thead>
<tr>
<th>Typology Category</th>
<th>Romantic Partner Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assurances (23%)</td>
<td>LDR - “Love you sweetheart.”</td>
</tr>
<tr>
<td></td>
<td>GCR - “This is just a little email to say that I love you.”</td>
</tr>
<tr>
<td>Openness (22%)</td>
<td>LDR - “The best week of my life to date, had a ball, also got tickets to the rugby final, was great, tell you all about it when I see you.”</td>
</tr>
<tr>
<td></td>
<td>GCR - “I understand why you just blow me off even though it hurts my feelings.”</td>
</tr>
<tr>
<td>Positivity (19%)</td>
<td>LDR - “I hope your night’s going well and you’re going to get some rest and relaxation in tonight.”</td>
</tr>
<tr>
<td></td>
<td>GCR - “I hope that you are having a really fun day.”</td>
</tr>
<tr>
<td>Social Networks (14%)</td>
<td>LDR - “My dad is mad at me.”</td>
</tr>
<tr>
<td></td>
<td>GCR - “I hope that we can finally get ahold of your parents soon about Dad’s Day.”</td>
</tr>
<tr>
<td>Referring to cards, letters, or calls (7%)</td>
<td>LDR - “I also left you two messages saying nite nite and that I miss you very much!!!!”</td>
</tr>
<tr>
<td></td>
<td>GCR - “I’ll talk to you really soon.”</td>
</tr>
</tbody>
</table>
The second research question asked whether long-distance and geographically close individuals differed in the maintenance behaviors present in their email content. The third research question asked whether type of relationship (family, friendship, or romantic relationship) related to the maintenance behaviors reported. A 2 x 3 two-way MANOVA was conducted to examine these research questions. Whether the relationship was geographically close or long-distance and whether the relationship was a family relationship, friendship, or romantic relationship were the two independent variables. The dependent variables were the proportion of units for each person assigned to each maintenance category: positivity, openness, assurances, social networks, joint activities, cards/letters/calls, humor, and miscellaneous. Three categories from the Canary and Stafford (1994) maintenance typology were not included, due to low frequency of usage: sharing tasks (one individual had units that fell into this category), avoidance (two individuals had units that fell into this category), and antisocial (three individuals had units that fell into this category). To ascertain that the assumption of independence was not violated for this test, individuals who reported emailing more than one of the six types of relationship partners (long-distance family member, geographically close family member, long-distance friend, geographically close friend, long-distance romantic partner, and geographically close romantic partner) had one of their email correspondents randomly chosen for inclusion, with the following exception: due to the low numbers of romantic partners in the sample, if an individual reported emailing a romantic partner, the individual was assigned to this condition for the MANOVA. This procedure results in the following cell sizes for each condition: 46 long-distance family members, 24 geographically close family members, 37 long-distance friends, 49 geographically close friends, 21 long-distance romantic partners, and 18 geographically close romantic partners.

For the multivariate test, the effect of type of relationship (family, friend, or romantic partner) was significant (Wilks’ $\lambda = .76$, $p < .001$; $\eta^2 = .24$). Distance from partner (geographically close or long-distance relationship) was not significant (Wilks’ $\lambda = .94$, $p > .05$; power = .62). The interaction between type of relationship and distance from partner was also not significant (Wilks’ $\lambda = .90$, $p > .05$; power = .78). Therefore, the univariate tests were only interpreted for the independent variable type of relationship (although see Table 4 for a summary of the univariate tests for both independent variables and the interaction between them). Regarding the variable type of relationship, the univariate tests were significant for three categories (see Table 5). First, assurances was significant, $F(2, 189) = 16.60; p < .001; \eta^2 = .14$. A follow-up Fisher Least Significant Differences test (using $p < .05$ as a threshold for significance) illustrated that all three types of relationships significantly differed from each other, with romantic partners ($M = .23$; $SD = .22$) being significantly higher than family members ($M = .14$; $SD = .14$), who were significantly higher than friends ($M = .07$; $SD = .14$).

Second, social network was significant $F(2, 189) = 3.23; p < .05; \eta^2 = .03$. A follow-up Fisher Least Significant Differences test illustrated that family ($M = .24$;
SD = .23) was significantly higher than romantic partners (M = .14; SD = .16). Third, the miscellaneous category was significant, F(2, 189) = 4.30; p < .02; η² = .04. A follow-up Fisher Least Significant Differences test illustrated that friends (M = .09; SD = .09) were significantly higher than family members (M = .06; SD = .07). The “miscellaneous” category included the subcategories of fillers (e.g., “um”), signing off behaviors (e.g., “that’s all for now”), and emoticons (e.g., 😊).

**Discussion**

This study examined how individuals use email to maintain interpersonal relationships. It also examined the content of email to determine what types of messages
were being sent. The study’s findings call into question research on relational main-
tenance that has focused exclusively on geographically close relationships or face-to-
face interaction. Such a focus is dated given that Pew Internet (2004) found 62% of
adult respondents from the United States communicated with family and friends
using the Internet everyday or multiple times a week, as compared to 38% who
communicated via Internet several times a month or less. The current study focused
on one week in the lives of two hundred and twenty-six college students, and the
volume of communication exchanged by email to both geographically close and
long-distance relational partners clearly illustrates the importance of this channel
in maintaining interpersonal relationships.

First, this study expanded research on relational maintenance by examining how
email can be utilized to enact maintenance behaviors. The authors chose to use
Canary and Stafford’s (1994) typology of maintenance activities for several reasons.
This typology is one of the most common in the literature, thus the findings of this
study can be compared to previous research on relational maintenance (e.g., Rabby,
1997). The authors also found that by modifying the typology slightly to make it
more appropriate to email (such as coding discussion of joint activities and discus-
sion of individuals in one’s social network), the coders easily made use of the
typology to code the email content. The current study illustrates that maintenance
behaviors can occur over email and that their content is similar to those enacted face-
to-face. Through examining more than face-to-face contact, the relational mainte-
nance literature can be broadened to include all maintenance behaviors enacted in
interpersonal relationships.

Emails with family members were most likely to exhibit the maintenance behav-
iors of openness, social networks, and positivity. Emails with friends illustrated the
same top three categories of maintenance behaviors. However, romantic partners
were most likely to report assurances, openness, and positivity. Rabby (1997) also
reported openness as the primary maintenance strategy in emails to romantic and
non-romantic partners. Additionally, Rabby reported that emails to romantic part-
tners contained more assurances and emails to non-romantic partners (family and
friends combined) contained more references to joint activities. In this study, there
were some differences in email use for different types of relationships, but for the
most part these effect sizes were small. Both romantic partners and family members
reported a higher proportion of assurances, which focus on communicating the

Table 5 Significant results for type of relationship (family, friendship, romantic relationship)

<table>
<thead>
<tr>
<th>Relationship</th>
<th>Assurances</th>
<th>Social Networks</th>
<th>Miscellaneous</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family</td>
<td>.1396**</td>
<td>.2424*</td>
<td>.0566**</td>
</tr>
<tr>
<td>Friends</td>
<td>.0671**</td>
<td>.2036</td>
<td>.0914**</td>
</tr>
<tr>
<td>Romantic relationships</td>
<td>.2318**</td>
<td>.1427*</td>
<td>.0611</td>
</tr>
</tbody>
</table>

*Two groups are significantly different at $\alpha = .05$
**Two groups are significantly different at $\alpha = .01$
importance of the relationship, than friends did. Friends were more likely than romantic partners or family members to report the “Miscellaneous” category, which focused on units tied more specifically to the email channel, such as signing off behaviors and emoticons. It is important to note that friends may be utilizing email for more everyday talk through the use of more relaxed language (e.g., signing off behaviors), while romantic partners may be seeking to communicate and reinforce the message of relational importance. Overall, our findings are more specific than Rabby’s but are generally consistent with maintenance strategies used in email a decade ago.

Few differences were found between long-distance and geographically close relationships when examining maintenance behaviors over email. The distance variable was not significant in the overall MANOVA. Examining all the types of maintenance categories at once may have camouflaged a significant difference in assurances found between geographically close and long-distance relationships when each maintenance category was examined separately, \( F(1,189) = 9.34; p < .005; \eta^2 = .04; M_{\text{LDR}} = .11; SD_{\text{LDR}} = .13; M_{\text{GCR}} = .15; SD_{\text{GCR}} = .21 \), with long-distance partners reporting fewer assurances. Long-distance partners may use email to keep up with daily activities, while geographically close partners have more opportunity for face-to-face contact, leaving more room in the emails for assurances. The authors found it surprising that there were no significant differences for geographically close and long-distance friends. The assumption that these relationships are very different and that lack of face-to-face contact results in lower quality long-distance friendships (Stafford, 2005) was not supported in this study. Perhaps the availability and ease of email use is blurring the differences between these two types of friendships (Stafford, 2005).

The small effect sizes in this study illustrate that email use is similar across type of interpersonal relationships and distance. Traditionally, face-to-face relationships have been perceived as more rewarding because researchers believed that individuals could exchange rewards most easily face-to-face (Davis, 1973). Therefore, individuals believed that relationships, especially friendships, would deteriorate over distance (Stafford, 2005). Today, new channels of communication provide opportunities to exchange rewards in other ways besides face-to-face; therefore, there are fewer distinctions between geographically close and long-distance relationships than there have been in the past. In a long-distance relationship, the positives of keeping up with each other through mediated channels such as email may outweigh the negatives of less frequent face-to-face interaction.

When considering whether geographically close or long-distance relationships are equitable, researchers should expand the current research by examining the whole pattern of channel use in an interpersonal relationship. For example, Wang and Andersen (2007) found that the more intimate the relationship, the more channels the participants reported employing to communicate with their long-distance friends. Many theories in CMC are based on computer-mediated communication channels being the only channel of communication, rather than a supplementary channel or as one communication option (Rabby, 1997). Rabby and Walther (2003) note that even though individuals claim they would like to use the richest media
possible to communicate, actual media choice in relationships is more complicated and depends on circumstances, relationship-specific norms, and how much control individuals wish to have over their message (e.g., O’Sullivan, 2000).

Previous research that has examined multiple channels includes Kim, Kim, Park, and Rice (2007), who examined self-reported use of face-to-face, email, mobile phone, and instant messaging communication to the five individuals with whom their Korean subjects communicated most frequently. Baym, Zhang, and Lin (2004) compared United States college students’ communication with local and long-distance relational partners across face-to-face, telephone, and Internet channels. They found that a great majority of interactions with local partners were face-to-face, followed by telephone and Internet. For long-distance relationships, telephone and Internet interactions were more common, followed closely by face-to-face. Empirical research that examines the actual messages communicated in a particular relationship across different channels would help expand this area (Walther & Parks, 2002), although such a project would be labor intensive.

Equity theory can be used to help explain individuals’ use of multiple channels. In their relationships, individuals negotiate their communication channel choices in such a way as to provide an equitable and rewarding relationship with the other. If an individual does not engage in such behaviors, such as failing to respond to an email message from a friend, the interpersonal partner may begin to feel underbenefited and change his or her behaviors or satisfaction level in regards to that relationship.

This study provides a needed extension to the literature on email, which has often depended on individuals being able to recall and report on their communication patterns using this channel. For example, while Dainton and Aylor (2002) found that self-reported frequency of email contact was related to self-reported maintenance strategies for long-distance romantic partners, the present study illustrates what maintenance behaviors are actually enacted through this channel. While Stafford et al. (1999) found that individuals reported that email allowed them to remain in contact with long-distance family members and with friends and relatives in college, this study explored how this channel was actually utilized to maintain such relationships. Wright (2004) found that positivity and openness were two of the most common maintenance behaviors self-reported by exclusively and primarily Internet-based relationships. This study found that for relationships that originated face-to-face, positivity and openness were the two most common maintenance behaviors actually found in the content of the emails, with assurances and discussion of one’s social network members also very common. This study also expanded upon Rabby’s (1997) study by examining long-distance and geographically close relationships and by examining a larger sample so that differences among family, friend, and romantic relationships could be examined, as compared to Rabby’s distinction between romantic and non-romantic relationships.

Much of the work and theories in CMC have focused on how individuals develop relationships rather than how they maintain relationships that already existed face-to-face (Rabby & Walther, 2003). Overall, this study contradicts the portrayal of
email as a “lean” medium, in which interpersonal partners exchange “mundane information” (Harwood, 2000, p.5). Individuals in this study were more likely to exchange information classified as openness, assurances, and positivity than they were to exchange information about joint activities. Especially for long-distance relationships, email provides a channel in which individuals can be open about their daily interactions and receive support from their loved ones, a function that is hardly “mundane” or unimportant.

This study also expands the CMC literature by examining how relationships that developed face-to-face use email to communicate, rather than focusing on relationships that developed online. As Adams (1998) notes, relationships that develop online may be very different from those that develop off-line. Walther (1996) has illustrated that the limitations of CMC channels can result in individuals taking a “hyperpersonal perspective” in relationships that are completely online: These individuals can reach deep levels of perceived intimacy based on idealized versions of their partners communicated through computer-mediated channels. Although Rabby and Walther (2003) acknowledge that this perspective does not translate as well to relationships that use multiple channels of communication, they wonder if these theories might relate to relationships that go through a stage where individuals communicate primarily online. For instance, if two long-distance friends have not interacted with each other face-to-face in years, might they use computer-mediated channels to communicate an overly positive view of themselves and their accomplishments to each other?

This research also calls into question the focus on face-to-face contact that is apparent in the literature on student adjustment. Bonebrake (2002) claims that Internet use may actually exacerbate feelings of loneliness. She suggests that forming friendships online can decrease contact with geographically close friends, which will keep loneliness from improving. This research shows two biases in the literature. One is that it does not consider the maintenance of existing friendships through the Internet, but rather only the formation of new ones. The results of this study illustrate the importance of including the existing long-distance friendships of new college students when considering their social support resources given the frequency of interaction found with long-distance interpersonal partners. The cheap, convenient channel of email may provide students with more opportunities to receive support from family and friends who live far away. Considering only face-to-face proximal contact may severely underestimate the social support that college students are receiving. It also ignores an important channel for the maintenance of many college student interpersonal relationships.

Future Directions
One potential area of future research is timing in email communication (Ledbetter, under review). For example, Adams (1998) suggests that if individuals know that their long-distance friends could easily take advantage of email to maintain the relationship but they do not, then the ending of the relationship may be accelerated,
which would possibly not occur if an easy way to communicate did not exist. The timing of emails and whether individuals keep track of whose “turn” it is to write may be relevant. Rabby and Walther (2003) note that individuals may use a lack of email contact strategically to avoid another person or to communicate to the other that one does not wish to maintain the relationship. The timing of emails has also been shown to affect ratings of affection and dominance in Internet messages (Walther & Tidwell, 1995). How individuals interpret issues related to the time of day an email is sent could also be examined in relation to the maintenance of interpersonal relationships.

**Limitations**

One limitation of this work is power issues with the significance tests. Although the amount of email turned in by the students over a week initially seemed overwhelming to the authors, when broken down by type of relationship (family, friend, romantic partner) and distance (geographically close or long-distance), cell sizes became much smaller. For each person included in the significance test, the authors coded an average of 22 units, which amounted to more than 4,000 units overall. Future studies could perhaps focus on a specific type of relationship and collect data for a longer time period.

This study indicates that email is used extensively by college students to maintain both long-distance and geographically close interpersonal relationships. How this channel is employed differs based on the type of interpersonal relationship, but few differences were found between long-distance and geographically close interpersonal partners. The results of this study illustrate that a focus on email communication should be included in future research interested in understanding how individuals maintain their interpersonal relationships.

**References**


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perform more online transactions, and pursue more activities online. Retrieved October 15, 2005 from http://www.pewInternet.org/pdfs/PIP_Getting_Serious_Online3ng.pdf


Appendix

Canary and Stafford’s (1994) maintenance behaviors typology revised
Items in italics are altered from the original Canary and Stafford (1994) typology.

I. Positivity

a. Nice and cheerful - “Hope life is treating you good.” (20-1)
b. Favors - “Next time you talk to your sister tell her Hi for me!!” (126-5)
c. Prosocial behaviors - “Sorry this is on such short notice.” (215-4)
d. Show affection (in language) - “Hello, bebe!” (184-2)

II. Openness

a. Self-disclosure - “My doctor’s visit went good with the pain doctor. He said my level of stretching is doing better every month. He did prescribe me some medicine, but I only want to take those only if I have to.” (20-1)

1. Problems and feelings in person’s life - “Not a whole lot of news here, expect for my leg, which I’m sure my mom told you about, and about the coaches getting fired. It’s been an emotional week and everyone needs a break.” (124-3)

b. Meta-relational communication

1. Problems and feelings (with person emailing) - “I am way excited that you are excited to get involved.” (162-2)
2. History - “Long time no talk! I haven’t caught up with you in awhile.” (124-3)

c. Advice - “Be good” (20-2)
d. Conflict - “I am not paying you for anything, either you help out of the goodness of your heart or don’t help at all.” (159-2)
e. Empathic behavior - “I’m not giving you advice per se, but take it how you want.” (12-2)

III. Assurances

a. Supportiveness - “Good luck on finals.” (139-2)
b. Comfort - “You are so thoughtful.” (169-2)
c. Need satisfaction - “I just knew you could hardly wait to hear the news!!!!!!!!” (27-3)
d. Overt expressions - “I love you lots…” (143-3)
IV. Social networks: Relying on friends and family

a. *Talk about (other) family members* - “It was good to see my family on Thanksgiving, but I can’t wait to see the whole family over break.” (124-3)
b. *Talk about (other) friends* - “…and I love my life and where I’m at now, my friends, etc.” (14-1)
c. *Talk about romantic partners* - “Besides the ones down here Sam from home decided to call me, I don’t know what’s going to happen with that, but I’m sure it’ll continue to be a struggle” (124-2)
d. *Talk about school or work* - “Next week is dead week, where I guess a lot of studying goes on, and we’re done with study hall now!” (124-3)
e. *Other discussion of third parties (specify in blank for each unit)* - “…wa and sa are still working out. William is really doing well…can see physical improvement (duration wise) with each session…he goes 110% each time…” (143-3)

V. Sharing tasks - “I just made the last payment this semester.” (229-2)

VI. Joint activities (Discussion of)

a. Share time together - “I was wondering if any of you girls had plans to go to football game” (123-2)
b. Routine events / places - “I just wanted to let you know that I made a tee time for our Las Vegas trip.” (27-1)
c. Rituals - “Did you get tickets to U-Sing?” (27-3)
d. Anti-rituals - “And I called the restaurant to set a time and I set it for 10pm on December 4th. I hope that’s an ok time. If you want to still go out to eat that’s fabulous and I would probably have a few of my friends come too” (41-3)
e. Talk time - “I hope to talk to you again soon.” (124-3)
f. Occasional visits / road trips - “I would love to see you for spring break.” (20-1)

VII. Cards, letters, calls (Discuss in email using the following channels, past or future):

a. Cards and letters - “What is your snail mail addy?? I can send you a cd of Anna’s pictures.” (46-3)
b. Phone calls - “…and my phone doesn’t work in here, so I’ll call you after class.” (99-1)
c. Combination - “I guess I’ll just wait to hear back from you.” (171-2)
d. Email - “If anyone is interested please email me back.” (123-2)
e. General (discuss keeping in contact) - “I’ll talk to you soon.” (124-2)

VIII. Avoidance (Discussion of):

a. Topic avoidance - “You can run but you can’t hide!” (2-1)
b. Person avoidance - (not used)
c. Alternate associations - (not used)
d. Negotiated autonomy - (not used)
IX. Antisocial
   a. Indirect - (not used)
   b. Direct- “I hate that you are called Sue now. It still seems foreign to me. Like Sue who? But I suppose you are growing up much to my disconcertion. You know, Sue is really not a very popular name, I can’t remember the last time I met a Sue, but it is a rather pretty name, so it’s a real shame.” (30-3)

X. Humor: Jokes and sarcasm
   a. Positive - “Don’t ya love it?” (143-3)
   b. Negative - “I have to admit, it’s really funny that even in that really tall hat, there is a guy standing next to you that is still taller than you!” (171-1)

XI. Miscellaneous
   a. Fillers - “well,” (11-3)
   b. Signing off behaviors - “LATER” (2-1)
   c. Emoticons - :) (5-4)

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