DISSERTATION

RELATIONAL MAINTENANCE IN

MIXED-MODALITY ROMANTIC RELATIONSHIPS

Submitted by

James Ney McDonald

Department of Psychology

In partial fulfillment of the requirements

For the Degree of Doctor of Philosophy

Colorado State University

Fort Collins, Colorado

Spring 2019

Doctoral Committee:

 Advisor: Jennifer Harman

 Rosa Martey
 Dan Graham
 Zinta Byrne

ABSTRACT

RELATIONAL MAINTENANCE IN MIXED-MODALITY ROMANTIC RELATIONSHIPS

Social information processing theory (SIP) provides clear predictions for how online and offline relationships should differ, but does not cover mixed-modality relationships (MMRs). Individuals in MMRs employ both face-to-face (FtF) and technology mediated communication (TMC) for relational maintenance. Stafford and Canary (1991) and Stafford et al. (2000) suggest that self-disclosure and discussion of one's relationship (relational maintenance strategies originally referred to collectively as "openness") depend on the use of another strategy, assurance-giving, to determine one's association with relationship satisfaction.

I sought to determine whether relationship-talk and self-disclosure, independent of assurance-giving, are negatively associated with relationship satisfaction, and whether the use of face-to-face (FtF) or technology mediated communication (TMC) have any bearing on the interaction between assurance-giving and openness strategies. It was expected that assurance-giving would moderate the relationship between openness strategies and satisfaction when the strategies were enacted by the same communication channel but not when communicated by different channels.

Mechanical Turk users ($n = 289$) in romantic relationships completed the openness and assurance-giving subscales of the Stafford et al. (2000) revision of the Relational Maintenance Strategy Measure (RMSM), reporting their engagement in maintenance behaviors using FtF and via TMC. Regression analyses were used to determine whether three maintenance strategies (assurance-giving, self-disclosure, and relationship-talk), communicated using either of two

general channels (FtF and TMC), predicted satisfaction in romantic relationships, and whether assurance-giving interacted with either relationship-talk or self-disclosure, using TMC or FtF channels.

The direct negative relationship between openness and satisfaction found in past research was not replicated in this study, but both TMC self-disclosure and TMC relationship-talk interacted significantly with TMC assurance-giving. For individuals with average or below average engagement in assurance-giving via TMC, greater engagement in self-disclosure or relationship-talk predicted lower satisfaction. These results suggest that openness strategies are not inherently harmful when communicated using FtF, but when communicated via TMC they may be detrimental to satisfaction if relationship partners do not complement openness strategies with heavy engagement in assurance-giving.

DEDICATION

To all the people that want to make the world

better tomorrow than it was yesterday:

every day gives us another chance.

"We're all of us works in progress." – Megatron of Tarn

James Roberts' *More than Meets the Eye* #28 (April 30, 2014)

TABLE OF CONTENTS

CHAPTER 1 – INTRODUCTION

Robert Downey Jr.'s portrayal of Tony Stark, also known as Iron Man, redefined Hollywood's superhero genre. Despite being a self-described, "genius, billionaire, playboy, philanthropist" (*Avengers,* 2012) that takes on augmented arms dealers, alien invasions, rampant artificial intelligences, and genocidal rock collectors, Iron Man has remained relatable to audiences throughout seven movies. He is funny, vulnerable, and rather than avoid meaningful human relationships or keep them hidden, he carries on life more or less normally.

Gwyneth Paltrow's character in the *Iron Man* films, Pepper Potts, while a fairly minor character in the comics (before she became a superhero anyway), has assumed the role of Tony's committed romantic partner. At times their relationship is threatened by rocket propelled grenades or alien wizards, but they spend much of their screen time dealing with relatively normal relationship issues like financial troubles, medical problems, substance use, and emotional trauma. A recurring theme in their relationship has been the challenge of maintaining communication despite high profile careers that often put them on opposite sides of the world. An especially powerful moment in the first *Avengers* movie occurred when Tony, preparing to sacrifice himself to save the world, calls Pepper to say goodbye… and loses signal before she can answer.

In the Marvel Cinematic Universe, Tony's armor (and all the gadgets and apps packed into it) is the most advanced technology in Earth's Western hemisphere, but it has limitations nonetheless. Like any problem, Tony attempts to overcome those limitations by improving his technology, and his attempts to supplant face-to-face (FtF) communication with technology mediated communication (TMC) are revisited in *Iron Man 3* (2013) and *Spider-Man:*

Homecoming (2017). Tony takes to using his armor as a physical avatar to interact with people remotely, but rather than helping him to communicate better with the people important to him, this science-fiction form of TMC generally succeeds at aggravating the people he interacts with; Pepper in particular describes it as, "a new level of lame" (*Iron Man 3*, 2013). Is FtF really so much better than TMC, though?

According to Walther (1992), communications researchers originally viewed mediated communication (and the development of relationships using it) quite negatively, with researchers perceiving mediated communication (e.g., video conferences and telecommunication) as being "less socially oriented and less friendly" (p. 53) than FtF communication. This perception was built on the premise that mediated communication filtered out important nonverbal information that we take for granted when conversing in person and it was supported by the negative and inflammatory nature of emotional expression researchers had observed between TMC users. Researchers generalized their conclusions to all relationships and "assumed that these effects should be universal" (p. 55) to all forms of TMC.

As technology mediated communication became more prevalent, researchers' attitudes towards mediated communication began to shift. Theories like Short, Williams, and Christie's (1976) Social Presence Theory and Daft and Lengel's (1986) Media Richness Theory (MRT) gained traction. Social presence theory distinguishes different forms of TMC based on the salience of communication partners within the conversation. Media like synchronous video communication make the presence of conversation partners very high, while media such as asynchronous text exchanges (e.g., e-mail) provide a very low sense of presence. MRT takes a similar approach, but rather than differentiating media based on presence, MRT differentiates media based on richness, the amount of information that can be conveyed by the medium. Rich

media (e.g., video communication applications like *Skype*) allow a sender to effect a change in their receiver's understanding more quickly than lean media (e.g., *Facebook* messaging) because of the additional non-verbal information shared (e.g., in the case of *Skype*, facial expressions). Rich media convey a larger amount of verbal and nonverbal information in the same time frame than lean media. TMC media vary in how much of the nonverbal information can be related, with some media being nearly as rich as FtF communication (Hampton et al., 2017). Social presence and media richness theories recognize that the study of a single communication medium cannot be generalized to all mediated communication, but both still evaluate media in terms of how closely they emulate FtF interaction.

Walther (1992) also points out that MRT is built around an organizational/workplace context. Because of that, MRT assumes that lean media like email and letters will primarily be used for formal communiques, and people writing such communiques will strive to keep their communication formal, professional, and universally intelligible. This form of use is clearly not reflective of how intimate partners communicate, however. Walther (1992) argued that computer mediated communication users building a relationship adapt to their media by altering how they communicate. For example, to compensate for the 'leanness' of the medium, online conversation partners not only disclose more information than do offline partners, they also ask more questions as well (Tidwell & Walther, 2002). While an initial interaction between previously unacquainted partners would be more impersonal online than if it occurred offline, this effect would fade away over time as partners learned to account and compensate for the constraints of the communication medium. In short, Walther's (1992) social information processing theory (SIP), which is consistent with Salancik and Pfeffer's (1977) same named theory that suggests

people use socially relevant information for sense-making, predicted that relationships online would progress essentially the same as those offline, but at a slower pace.

Walther (1996) went further with SIP, suggesting that some of the limitations inherent with TMC might actually produce deeper, more meaningful interactions. Walther attributed this partly to attentional resources, noting that technology mediated communication users need not 'suck in their waist' or engage in other self-presentation behaviors that in FtF communication would distract them from choosing the best words to express themselves. However, Walther (1996) also amended SIP, which originally described mediated relationships as ascending from impersonal to interpersonal, by adding a third phase: hyperpersonal. The hyperpersonal phase is defined by the TMC users' deliberate exploitation of their media's limitations in order to engage in greater impression management than would normally be possible offline. Walther believed that, when given greater control over others' impressions, people's need to form relationships and be liked by others would lead them to engage in socially desirable behavior. People would act and communicate in ways that are self-flattering, attempting to portray their best possible selves. This behavior, along with the tendency of message recipients' to overestimate their similarity to message senders, would promote greater growth of intimacy in online relationships compared to offline relationships.

Whether the growth in intimacy predicted by the hyperpersonal model is good or bad is open to debate. Walther (1996) clearly regarded the hyperpersonal phase as a positive aspect of mediated communication, but Nguyen and colleagues (2012) have argued that the unrealistic impressions formed during the hyperpersonal phase set up relationships for poor outcomes in the long run. Either side of the debate, however, assumes that TMC users have met and developed

their relationship online. What about relationships that cannot be categorized as either online or

offline?

CHAPTER 2 – MIXED MODALITY RELATIONSHIPS

In mixed modality relationships (MMRs) partners communicate through both FtF and TMC channels, with either channel capable of being the primary or secondary avenue for relational maintenance (Rabby & Walther, 2003). Summarizing research conducted as part of the Pew Internet and American Life Project, Boase, Horrigan, Wellman, and Rainie (2006), wrote:

> "Americans connect with their core and significant ties in a variety of ways. They continue to use in-person encounters and landline telephones. Yet new communication technologies — email, cell phones, and instant messaging (IM) — now play important roles in connecting network members. The internet does not stand alone but as part of an overall communication system in which people use many means to communicate." (p. iii)

Thanks to the proliferation of smart phones and reliable wireless networks, individuals in collocated or cohabitating relationships have adopted the use of quick, simple communication channels to supplement their FtF interactions (Hampton et al., 2017) as Rabby and Walther (2003) predicted, and individuals in long distance relationships now have access to TMC media with high presence and richness (e.g., *Skype*). Within romantic MMRs, partners can choose their communication channel as the situation demands. They may interact in person (FtF) in the morning and evening, but also use social media instant messaging (a form of TMC) to remain in contact throughout the workday, or to pass discrete messages to one another in the presence of others. Conversations may start by one channel and end by another, or the communicators may even utilize both channels simultaneously. Does this intermingling of FtF and TMC channels make the distinction between mediated and unmediated communication irrelevant? Stafford, Kline, and Dimmick (1999) seemed to think so:

> "Future research in both the areas of interpersonal relationship maintenance and computer mediated communication needs to move away from false dichotomies such as 'interpersonal' communication versus 'mediated' communication or 'on-line' versus 'off-line' relationships in

order to develop a more complete understanding of both the uses of computer mediated communication and the maintenance of relationships." (p. 667)

In the context of SIP, this makes sense. Walther (1992) argued that, "at best, cues-filtered-out effects in computer mediated communication may be bounded to initial interactions among unacquainted partners" (p. 62). Walther believed that in established relationships, partners should know each other well enough to overcome the hurdles suggested by MRT or social presence theory. Furthermore, Walther's warranting theory suggests that the amount of credibility assigned to information about oneself depends on how much power one had over the presentation of that information (Walther & Parks, 2002). If that is the case, then in-person interactions should generally carry more weight in shaping people's impressions than mediated interactions. In short, romantic MMR partners, being very well acquainted, should be able to overcome the cues-filtered-out effects and should *not* be able to engage in the sort of impression management the hyperpersonal model describes. From the standpoint of SIP, a romantic MMR is practically indistinguishable from a wholly offline romantic relationship.

That said, Walther (1992) was very clear that SIP assumes unlimited time for communication to take place, acknowledging that "there are occasions when much needs to be discussed in a short time, and computer mediated communication would impede this goal" (Walther, 1992, p. 80). Walther argued that the negative outcomes for mediated communicators in early research were likely due to time constraints – people interacting via TMC take longer to reach agreement, and when a deadline is imposed, they may never resolve the issue at hand. Walther and Parks (2002) referred to "hypernegative effects" resulting from such time constraints – unduly negative interpretations of messages, hostile messages, and failure to compensate for the media's limitations – but believed these should only be experienced by

communicators who do not expect to interact in the future. While individuals in romantic MMRs would typically expect future interaction, it seems likely that time constraints might negatively affect their mediated communication as well. Rushed communications may be terse or incomplete, failing to furnish all of the extra information that must be communicated deliberately when using a lean medium, and failure to work through the issue in a timely manner could have negative consequences.

In general, however, MRT may be more useful than SIP for understanding romantic MMRs. While SIP is focused on online relationships in which partners are forced to adapt their communication to the media channel they have to connect them, MRT's focus on organizational contexts and workplace settings assumes that actors have a variety of options available to them for sending a message, including walking down the hallway to knock on someone's door. In fact, Walther (1992) suggests that MRT provides, "a set of contingencies under which each medium might optimally be used, so that receivers understand messages clearly" (p. 57). Specifically, MRT would suggest that "very simple or unequivocal" information can be communicated safely by the leanest of media, but "ambiguous, emphatic, or emotional" information should be communicated in person (Walther, 1992).

Of course, the implication of MRT is that communicators should be making deliberate decisions about which channel to use, based on the leanness or richness they *perceive* in that channel. Communication decisions in romantic MMRs, then, would not be based directly on the leanness of the available channels, but on the *perceived* leanness of the channels. According to channel expansion theory (Carlson & Zmud, 1999), this perception is partly dependent on the experience a communicator has with the channel in question. For example, a person who has had a great deal of experience using email will perceive that communication channel as richer than a

person who has used it very little. This means that the sort of adaptation Walther (1992) expects does not require communication with a specific partner – skills learned communicating with one partner carry over to communication with another partner. Although the findings of Carlson and Zmud (1999) support this view for email communication, they also support Walther's (1992) expectation that communicators will adapt to a channel specifically in the context of a particular relationship. Experience communicating by email was associated with perceiving email to be a richer channel, but experience interacting with a specific partner by email was also associated with perceiving that channel as richer when communicating with that partner. Notably, experience with the topic of communication was not associated with the perceived richness of the channel.

In romantic MMRs, then, decisions about channel use are likely based on the options an individual has for communicating with his or her partner, and the perceived constraints of those channels, which are in turn determined by the nature of the channels in question, experience using those channels, and experience communicating with one's romantic partner by those channels.

To use a metaphor to illustrate the different communication channels, FtF communication is like a four lane highway while TMC channels are smaller roads: ranging from the three lane highway (i.e., video communication) all the way down to the dirt and gravel country road with an old bridge that's only wide enough for one car to cross at a time (i.e., asynchronous, text-based messaging systems like e-mail). These roads have different limitations, with smaller roads (leaner channels) simply unable to carry as much traffic as larger roads (richer channels). In this metaphor, SIP draws comparisons between small road drivers (individuals in online relationships) and highway drivers (individuals in offline relationships). SIP suggests that drivers

on the smaller roads will adapt to their limitations, reducing their speed and paying more attention to what other drivers are doing. Drivers using the smaller roads may take longer to get somewhere, but they will arrive there just the same as if they had taken the highway.

Most drivers, however, will use some combination of large and small roads to reach their destination. How they combine large and small roads depends on where they are going, when they need to get there, what obstacles they need to contend with, and what their personal preferences are. Some drivers may prefer to stay on the highway as long as possible, while others will exit at the earliest possible opportunity. In this metaphor, channel expansion theory suggests that the road taken will depend on past experience using that type of road to get to other locations, and past experience using that particular road to reach that particular destination. MRT would suggest that which roads drivers choose not only affects how long their trips take, but how likely they are to make it to their destination. The small roads may be just as safe as the major highway for light traffic on a clear day, but when traffic is heavy (a lot of information must be communicated), drivers are in a hurry (time is limited), or road conditions are hazardous (the information is of a delicate nature), they may wish to avoid smaller roads (lean media). Drivers opting to take the smaller roads may find themselves trapped in gridlock, or they may lose control of their vehicle and slide off the road entirely, tumbling and rolling into the drainage ditch as a two-ton conflagration.

In short, while romantic MMR partners may be *capable* of using any media effectively under ideal circumstances, they may encounter problems with TMC when the communication they are engaging in is inherently difficult. Unfortunately, maintaining a romantic relationship can involve some difficult conversations.

Channel Selection in Mixed Modality Relationships

Insofar as the quality of a relationship depends on the quality of the communication within that relationship, satisfaction in a relationship is likely shaped by the decisions romantic MMR partners make when choosing their communication channels. For example, let us say that Pepper Potts and Tony Stark are having their friends, Bruce Banner and Betty Ross, over for dinner during the coming weekend. Pepper may want to remind Tony that Bruce and Betty are coming over for dinner in a few days, but she must decide when and how to remind him. Pepper might reason that if she calls Tony to remind him about their weekend plans while he is flying around in his armor, Tony can ask his A.I. assistant, Friday, to make a note in his schedule. In that case, she might *make a point* of contacting him while he is zipping across the Midwest at Mach 4. In fact, if Pepper's message is just a reminder of where and when, she might just email Tony and let Friday automatically add the event to his calendar (*Gmail* does this, so presumably a Stark Enterprises A.I. can as well). Such a message does not require interpersonal involvement or the movement of very much information, so both social presence theory and MRT would predict that a simple text or email should be sufficient to accomplish Pepper's goal.

However, if Pepper also needs to discuss the importance of *not* bringing up the Incredible Hulk's one night stand with the time-travelling Thundra, his marriage to the alien queen Caiera, or either of the children those relationships produced (Park, 2007; Parker, 2008), then Pepper may think twice. Such a conversation will require communicating much more information than a simple where-and-when, and require more attentiveness from Tony. In that case, she may wish to deliberately choose a richer communication channel that gives her more presence in the conversation. If she waits until they meet at home that night, she can discuss the issue at length with Tony, and keep Tony focused on what she is saying.

Meanwhile, Tony Stark may be missing Pepper Potts, but be too busy scrapping Ultron drones to fly home, and the clanging and crashing of metal robots may make a phone call problematic. When FtF communication is impossible, impractical, or inconvenient, a communicator might reason that even communicating by a lean medium, like text, is superior to not communicating at all. Hampton and colleagues (2017) suggest that this sort of communication can provide what Gardner, Pickett, and Knowles (2005) call "social snacks," communicative acts that sustain our sense of social connection between direct interactions. Tony may decide to grab such a 'snack' by using his armor's voice-to-text program to rattle off a quick message to Pepper to provide a short, simple update about his day and to remind her he is thinking of her.

Of course, life often complicates relationships. A borrowed car may fall victim to a fender bender, or a slip up in the kitchen may lead to an urgent care visit. In *Avengers: Age of Ultron*, Tony Stark's attempts to cope with the trauma of his earlier experiences leads him to push forward with a new idea, pressing on recklessly despite the misgivings of his friend and research partner, Bruce Banner. The end result is the accidental creation of Ultron, a genocidal robot. It seems safe to say that, at some point, Tony would have to explain to Pepper how Ultron came to be. Given Tony's desire that Pepper keep a favorable impression of him, explaining his nearly apocalyptic mistake would likely have been difficult and stressful. Both social presence theory and MRT would suggest that such a complicated conversation should be held in-person if possible, and by the richest possible medium if not. However, Tony may perceive the leanness of a TMC channel as working in his favor. According to SIP, using text or email, Tony can write, edit, rethink, and re-edit his words until he is reasonably sure he has composed his explanation (or apology) as best he can. Furthermore, text-based TMC alleviates the need to monitor one's

body language or expressions (Suler, 2004; Suler, 2005), as well as tone, pitch, and pace of speech. As a result, TMC can make impression management easier, and self-disclosure less frightening by limiting communication to things under one's deliberative control (Child & Agyeman-Budu, 2010). While selecting an emoji to send with his apology is certainly more laborious than simply smiling or frowning, Tony can choose his emoji carefully (or simply omit it). If an argument ensues and he becomes defensive, Pepper will not see him rolling his eyes or stress-eating, and he does not need to worry about keeping a poker face if he decides he needs to blame the whole situation on Dr. Banner.

In addition to the richness and presence a medium affords its users, another concern for romantic MMR partners may be the publicness of the TMC channel used. SIP posits that impression management is an important element of mediated communication, but when communicating in a public space, we may be concerned with the impressions of bystanders as well as the impressions of our primary message recipient. Being aware of this need for impression management might drive a person away from using public TMC to communicate within an intimate relationship. For example, Tony and Pepper may differ greatly in how they communicate with each other over social media like Twitter or Facebook. Child and Agyeman-Budu's (2010) study examining the personalities and behaviors of bloggers indicated that high self-monitors were more concerned with who was reading their posts than were low self-monitors. Individuals with high concern for appropriateness disclosed more personal information than those with low concern for appropriateness, likely because these individuals were more concerned with their communications being misunderstood or misinterpreted. Pepper is both highly skilled at self-monitoring *and* concerned with appropriate behavior, therefore in TMC she would simultaneously be motivated to maintain her privacy and avoid ambiguity – given these

goals are somewhat incompatible, she might minimize her use of publicly visible TMC, and possibly TMC in general. Tony is not a highly skilled self-monitor and definitely not concerned with appropriate behavior, so @MarvelsIronMan would probably tweet @PepperPottsCEO with little to no concern for who knows what about their relationship.[1]

In MMRs, partners may choose particular channels for specific acts of communication, and the effectiveness of that communication would be partly determined by the channel selected. However, as complicated as this premise might seem, it fails to consider another important factor: messages are not sent in a communication vacuum. When a sender transmits a message to a receiver – by any medium – that message is sent within a context established by all previous messages sent by every medium used in the relationship. If Pepper Potts receives a text message from Tony Stark saying, simply, "Everything is fine btw[2] don't worry afk[3]" Pepper's reaction to that individually ambiguous message will be influenced by past or concurrent communications she has had with Tony. For romantic partners in the real world, this may be reflected in the connections Stafford and Canary (1991) and Stafford, Dainton, and Haas (2000) observed among assurance-giving, openness, and relationship satisfaction.

Relationship Talk and Self-Disclosure

In the early 1990s, Stafford and Canary (1991) conducted a large study ($n= 956$) of dating, seriously dating, engaged, and married undergraduate and graduate students to determine what strategies they used to maintain their relationships. They administered a questionnaire asking the students about their partners' use of 78 different behaviors within their romantic relationships. The list of behaviors used was compiled from items used in previous research, as

---

[1] On a lark, I checked these accounts on Twitter. Not surprisingly, @PepperPottsCEO has only a bit over four thousand tweets, while @MarvelsIronMan has over 18 thousand tweets.
[2] "by the way"
[3] "away from keyboard"

well as a much smaller, preliminary study which itself identified over 300 behaviors falling into 19 different categories. Subsequent factor analysis of the students' responses narrowed the broad range of partner-initiated behaviors down to five factors equating to five general strategies for sustaining and promoting the growth of a relationship: *positivity, assurances, openness, sharing social networks,* and *sharing tasks*. These five strategies omit many concepts that have been considered forms of relational maintenance, including day-to-day, mundane interactions between partners (Stafford et al., 2000) and generally negative behaviors like deception (Guthrie & Kunkel, 2013). Despite the limited scope of the strategies investigated by Stafford and Canary (1991), the five-factor Relational Maintenance Strategy Measure (RMSM) did account for over half of the variance in *control mutuality* (partners' sense of mutual control in the relationship), *commitment to the relationship*, *liking of the partner*, and *satisfaction* within the relationship.

However, while all five of the strategies identified by Stafford and Canary (1991) were significantly correlated to these relationship characteristics, more in depth analyses revealed that greater openness in the relationship was actually associated with lower satisfaction when controlling for other maintenance strategies:

> "Perceptions of partner openness were not significantly associated with control mutuality, commitment or liking when the other maintenance factors were controlled. Instead, and contrary to intuition, openness was negatively correlated with most of the relational characteristics when partialling the effects of the other maintenance factors." (Stafford & Canary, 1991, p.233)

The positive correlation initially observed between openness and satisfaction depended on participants using the assurance-giving strategy. Whether openness was associated with greater satisfaction depended on the extent to which participants engaged in hopeful discussion of their relationship's future and reinforced their relationships by expressing affection and commitment towards their partners (Stafford & Canary, 1991; Stafford et al., 2000). The

relationship between openness, assurance-giving, and satisfaction was still evident, even after the removal of items associated with advice-giving (Stafford et al., 2000). Openness was positively associated with all relationship outcomes (satisfaction, liking, control mutuality, and commitment) in a simple correlation, but this positive relationship disappeared in step-wise regression; openness had no independent relationship with liking or control mutuality, and its relationships with satisfaction and commitment were negative.

Why might a maintenance strategy like openness be associated with *lower* relationship satisfaction? It may be that relationship partners increase their engagement in openness when satisfaction drops or it may be that openness is, itself, potentially distressing. What Stafford and Canary (1991), Canary and Stafford (1992), and Stafford et al. (2000) identify as "openness" actually collects a variety of communication behaviors. In Stafford et al.'s (2000) study, openness includes sharing intimate information ("I am open about my feelings"; "I talk about my fears"), direct discussion about the relationship ("I like to have periodic talks about our relationship"; "I talk about where we stand"), and disclosure about how one feels about the relationship ("I simply tell my partner how I feel about the relationship"; "I disclose what I need or want from the relationship"). Stafford et al.'s (2000) definition of openness additionally includes promoting openness from one's partner ("I encourage my partner to share his/her feelings with me"). Stafford (2011) reorganizes these behaviors into two strategies: self-disclosure and relationship-talk. Either of these strategies could conceivably cause distress within a relationship.

A cycle of reciprocated self-disclosure increases the intimacy of a relationship as it progresses (Mikulincer & Nachson, 1991), often making it a good "index" for relationship quality (Yum & Hara, 2006). Reflective of this cycle, more intimate relationships, such as

marriages, exhibit greater use of openness strategies than less intimate relationships such as friendships (Kalbfleisch, 2001). However, while openness drives a relationship's escalation from superficiality to intimacy, closedness (choosing to keep some thoughts to oneself) and privacy regulation are also important parts of a relationship (Altman, Vinsel, & Brown, 1981). Altman and colleagues (1981) argue that, just as a relationship could not survive partners being completely closed off from one another, total openness would also be harmful. Altman and colleagues contend that, "Extreme openness might actually increase the probability of conflict, violate self-integrity, and detract from the mutuality that was being sought in human relationships" (p.115). Similarly, Saxe (1991) suggests that, "complete honesty could make relationships tedious, if not conflict laden" (p.414).

Although Altman et al. (1981) suggest that over-sharing one's thoughts and feelings might be harmful to a relationship, Stafford's (2011) findings suggest that the self-disclosure aspect of openness is not problematic. Rather, it seems to be relationship-talk, which either reflects or causes a problem within the relationship. It may be that relationship-talk is associated with lower satisfaction because relationship partners engage in such discussion to resolve problems with their relationship. This discussion may be constructive and conducive to better outcomes in the long run; Canary and Stafford (1992) found that self-reported engagement in openness was associated with perceiving one's marriage as more equitable, which suggests that discussion of the relationship may play an important role in negotiating roles and expectations in the relationship. However, some couples actually employ closedness as an effective form of relational maintenance, explicitly declaring some topics of conversation as off-limits within the relationship (Roloff & Ifert, 1998). This finding suggests that – in some cases – discussing a relationship problem can be more dissatisfying than leaving it off the table. Certainly, compared

to maintenance strategies like positivity and assurance-giving, relationship-talk does seem more likely to lead to stress and conflict. If that is the case, then there may be an important intersection between relational maintenance strategies and channel selection.

Relational Maintenance and Mediated Communication

The nature of interpersonal communication is not necessarily the same across media, particularly with respect to relational maintenance strategies (Dainton & Aylor, 2002a), and which media are favored in a relationship may have important consequences for relationship satisfaction (Connell, Mendelsohn, Robins, & Canny, 2001). Caughlin and Sharabi (2013) found that segmentation of FtF (having some topics of conversation exclusive to face-to-face communication) has a positive relationship with perceived closeness within a romantic relationship, but segmentation of TMC (having some topics of discussion exclusive to technology mediated communication) was associated with lower closeness and satisfaction in the relationship.

Compared to maintenance strategies like positivity and assurance-giving, openness (especially relationship-talk) may require the conveyance of more information or a greater awareness of one's partner within the conversation in order to be effective. Saying, "I love you" is quite simple (my wife and I have used the single number "8" to express the sentiment since high school[4]), but discussing relationship issues like financial problems, conflict with in-laws, trouble with children, or decisions about education or relocation, all take considerably more effort and may involve some degree of interpersonal conflict.

---

[4] We adopted this 'code' as a way of silently communicating the sentiment without inviting the ire of people who didn't approve of our relationship. Texting "8" or simply flashing eight fingers meant "I love you" because the statement has eight letters and because there's a romantic connotation to the infinity symbol. The typical response, of course, was "11". That was actually easier to convey by text than with hand signs.

According to SIP, using mediated communication slows conversations down, possibly for the benefit of the people communicating, but there are multiple reasons a slower pace may not be beneficial when engaging in relationship-talk. For one, making the relationship-talk slower will make it longer – this may make the conversation more emotionally taxing, or rob the couple of precious time that could have been spent doing fun things together. Slowing the relationship-talk may also be problematic if the issue is time-sensitive or if partners do not have much free time to spare for the conversation.

Finally, using TMC may lead partners to share opinions that are offensive or hurtful to the messages' recipient. The relative leanness of TMC may make it normative to share more information via TMC than FtF; Tidwell and Walther (2002) found that participants both shared more intimate information and asked more intimate questions when communicating with each other online than when communicating FtF. However, if TMC reduces the communicators' awareness of each other within the conversation, communicators may rationally know they are talking to their romantic partner, but *feel* alone in the conversation. This may contribute to an "online disinhibition effect," in which people tend to disclose intimate details online that they would otherwise not disclose offline, such as "secret emotions, fears, and wishes" (Suler, 2004; Suler, 2005). In conversations likely to elicit conflict, romantic partners may say things to one another they would never say when communicating FtF, leading to a potentially catastrophic failure in communication.

It is possible that among the couples segmenting certain topics to FtF in Caughlin and Sharabi's (2013) research, some were specifically limiting discussion of these types of relationship issues to in-person conversations. By limiting certain conversations to in-person interactions, these individuals ensured their chosen topics were only discussed by a rich

communication channel with a high sense of presence; this may have helped them avoid the pitfalls of misunderstanding and disinhibition.

While attempting relationship-talk and possibly self-disclosure may be more difficult via TMC than in-person, the same is likely not true for simpler maintenance strategies like assurance-giving. MRT describes the passage of information in terms of effecting a "change in understanding." Given that assurances can be simple statements reinforcing things that have been communicated to a partner many times, assurance-giving would typically entail a much smaller change in understanding than do either self-disclosure or relationship-talk. Therefore, assurance-giving strategies are typically less difficult to execute, less time demanding, and presumably carry less risk of misunderstanding than openness strategies. Because assurance-giving is simpler than openness, it would likely be a positive influence regardless of the channel used to communicate it, while openness, especially relationship-talk, would be more likely to have negative consequences when carried out via TMC. While Pepper Potts and Tony Stark might run into trouble using TMC to discuss how much money he is spending on his wardrobe, they are unlikely to encounter problems simply sending each other selfies and encouraging, affectionate messages during the work day, and they might allay the feelings of loneliness that come with being the head of a major company and the leader of a superhero team.

However, as previously stated, a sender's messages are not received in isolation, but in the context of other messages communicated within the relationship. In particular, the relationship between openness and satisfaction seems dependent on the level of assurance-giving in a romantic relationship (Stafford & Canary, 1991; Stafford et al., 2000). Stafford et al. (2000) suggest that assurance-giving and openness interact because some messages contain both assurances and self-disclosures or relationship-talk. They suggest that these "assuring

disclosures" are constructive and beneficial to the relationship's outcomes, while messages that convey openness without assurances are not beneficial. If the relationship between assurance-giving and openness with respect to satisfaction depends on communicating messages which actively include both strategies, then we might expect that the two maintenance strategies would only interact when communicated using the same channel.

CHAPTER 3 – THE PRESENT STUDY

Ideally, investigating the intersection between channel use and relational maintenance would involve collecting information about individual messages to assess the content of messages sent by different channels. In a fully technology mediated relationship, this approach would be invasive but not impossible. For romantic MMRs, however, this approach would entail not only collecting records of emails and texts, but some form of information about phone calls and in-person conversations. This sort of data collection would be difficult to manage. In a field study, participants would have to take notes or answer questions about every act of communication they experience with their partner. For many relationships, communication with a partner would be so frequent that requiring a participant to stop what they are doing and answer questions about each communication would be very disruptive and potentially alter their communication with their partners, compromising the validity of the study. It might be feasible to collect such data in a lab environment, instead, but this would itself present significant concerns about generalizability (many such concerns are voiced in Walther, 1992).

Either approach would be costly, and little research exists upon which to build such a line of investigation; it is possible that FtF communication does not differ from mediated communication in this regard. The purpose of this study is to make a precursory investigation into the concept of channel-differential openness and assurance-giving. Accordingly, this study simplifies the core concepts greatly. All data were collected through basic, retrospective self-response measures, rather than direct observation of the participants' actions over time, and data was collected only from one romantic partner.

In-person communication and mediated communication were reduced to two channels (FtF and TMC) for this study. This means that TMC encompassed a wide range of media,

including video calls, phone calls, text messaging, and email. These channels vary greatly in the richness and presence they offer users. In a phone call, the sound of the speaker's voice and the ability to provide quicker feedback likely makes it easier for the recipient to accurately infer emotions, intent, and other qualities that are difficult to discern in text communication. Video calls have this virtue as well, but they also offer users the opportunity to see each other's facial expressions and to have some limited sense of body language and surroundings. Doubtless, this is why *Skype* is a popular form of communication in long distance relationships (Kirk, 2013), and why *Skype* use is a strong predictor of relationship satisfaction in long distance relationships (Hampton et al., 2017; Kirk, 2013).

Yet, both phone calls and video calls are still very different from FtF communication. The remote nature of a phone call means that body language, facial expressions, and environmental context must be deliberately described. While video calls address these short-comings and come very close to the richness and presence of FtF communication, for romantic partners, the inability to touch one another is likely a constant reminder of the medium's limitations. While the distinction between media channels is important, the distinction between FtF and everything else was still valid for the aims of this study.

The goal of this study was simply to determine whether a relationship outcome (in this case, romantic relationship satisfaction) traditionally predicted by certain relationship maintenance strategies (assurance-giving and openness), is affected by the channels (general TMC or FtF) used for enacting those strategies. It was expected that assurance-giving would moderate the relationship between satisfaction and either openness strategy (relationship-talk or self-disclosure), but this interaction would only be apparent for assurance-giving and openness strategies enacted by the same channel.

Hypotheses

Past research has indicated that assurance-giving is a positive predictor of relationship satisfaction, even when controlling for openness. It was expected that this would also be the case for in-person assurance-giving and technology mediated assurance-giving. The same research has indicated that while openness appears generally beneficial to a relationship, it is actually a negative or non-significant predictor of satisfaction when controlling for assurance-giving. It was expected that the same phenomenon would emerge in this study for two forms of openness (relationship-talk and self-disclosure) communicated using TMC and FtF. Finally, assurance-giving has been shown to positively moderate the relationship between openness and relationship satisfaction. It was expected that the same interaction would emerge between assurance-giving and relationship-talk, and between assurance-giving and self-disclosure, but it was expected that this interaction would only be significant when assurance-giving was communicated within the same channel as these forms of openness. Specifically, it was hypothesized that:

> H1: Assurance-giving is a significant positive predictor of satisfaction, whether it is communicated FtF or by TMC. This was expected because past research has consistently shown that higher engagement in assurance-giving within a relationship predicts higher satisfaction.

> H2: There is a positive interaction effect between FtF assurance-giving and FtF self-disclosure, but not between FtF assurance-giving and TMC self-disclosure. This interaction was expected because assurance-giving has demonstrated an interaction with openness in the past, and self-disclosure is a form of openness. Researchers have speculated that this interaction is due to assurances being given with

disclosures, thus it was expected that maintenance strategies separated by the use of different channels would not interact with one another.

H3: There is a positive interaction effect between FtF assurance-giving and FtF relationship-talk but not between FtF assurance-giving and TMC relationship-talk. This interaction was expected because assurance-giving has demonstrated an interaction with openness in the past, and relationship-talk is a form of openness. Again, no significant interaction across channels was expected because the use of different channels would separate assurances and openness into separate messages.

H4: There is a positive interaction effect between TMC assurance-giving and TMC self-disclosure but not between TMC assurance-giving and FtF self-disclosure.

H5: There is a positive interaction effect between TMC assurance-giving and TMC relationship-talk but not between TMC assurance-giving and FtF relationship-talk.

CHAPTER 4 – METHOD

Participants

Between June 1 and June 8, 2015, adults in intimate relationships (n= 328) were recruited through Amazon's Mechanical Turk (MTurk) to complete a survey hosted on Qualtrics in exchange for $0.15 paid through MTurk. The posted description of the task was short: "Complete a survey about how you communicate with your romantic partner, using different forms of technology. This survey should take less than 15 minutes to complete." According to Amazon's record, the task took workers 9.05 minutes to complete on average. Participants who spent less than 5 minutes on the task were dropped from the analysis, as it seemed unlikely they read all of the items or carefully considered them when responding. This resulted in a final sample of 289 participants.

Procedures

Participants were directed to a survey hosted on Qualtrics. The survey prompted participants to think of a current romantic relationship and asked participants about the status of their romantic relationship ("early dating", "seriously dating", etc.), how far away their relationship partner lived, how long they had known their partner, and how long they had been romantically involved with their partner. Participants were also asked how often they talked to their partner in person, by phone calls, video calls, public internet messaging, instant messaging, video chat, and internet chat. In counter-balanced order, the online survey then administered the relationship satisfaction subscale of Rusbult's Investment Model Scale (IMS; Rusbult, Martz, & Agnew, 1998), measures of intimacy and power in the relationship, measures pertaining to the participants' general use of media (frequency, integration, and segmentation), and the RMSM adapted for this study, with demographic questions presented afterwards.

Measures

    Demographics. Slightly more men (52.60%) participated in the study than women (47.10%). Most participants were heterosexual (79.90%) and very few identified as gay or lesbian (1.70% each), but many participants identified their orientation as bisexual (14.50%). Participants' ages ranged from 19 to 64, with an average age of 31.04 years ($SD = 8.37$ years). Table 1 details the gender and sexual orientation of participants and their partners.

Table 1

Gender and Sexual Orientation of Participants and their Partners

	Participant		Partner	
	Freq.	*%*	*Freq.*	*%*
Gender				
Cisgender Male	152	52.60	145	50.20
Cisgender Female	136	47.10	143	49.50
Transgender	0	0.00	1	0.30
Other	1	0.30	0	0.00
Orientation				
Heterosexual / Straight	231	79.90	235	81.30
Bisexual	42	14.50	42	14.50
Gay	5	1.70	5	1.70
Lesbian	5	1.70	4	1.40
Other	1	0.30	0	0.00
No Response	5	1.70	3	1.00

    MTurk is used internationally, but no restrictions were made regarding participants' nationality. Qualtrics logs participants' IP addresses and approximates participants' geographic coordinates based on that information, and many participants were based in India ($n = 180$), with less than half as many being based in the United States ($n = 73$; see Table 2 for more details).

Table 2

Location of Respondent's Internet Protocol Address

IP Address	Freq.	%
India	157	54.30
USA	64	22.10
UNDETERMINED	57	19.70
Bangladesh	1	0.30
Brazil	1	0.30
France	1	0.30
Germany	1	0.30
Mauritius	1	0.30
New Zealand	1	0.30
Peru	1	0.30
Philippines	1	0.30
Romania	1	0.30
Serbia	1	0.30
Venezuela	1	0.30

Not surprisingly, given these nationality differences, only 78 of the participants reported being white, and 164 identified as Asian. A surprisingly large number of participants ($n = 18$), identified themselves as "American Indian, Aleut, or Eskimo", but it is possible this was due to foreign participants not identifying with the categories typically used in American surveys. Consistent with this speculation, some participants chose to use the "Other" response to describe themselves as "Indian" rather than choose the provided response "Asian or Pacific Islander" (see Table 3 for more details).

Table 3

Race and Age of Participants and their Partners

	Participant		Partner	
	Freq.	*%*	*Freq.*	*%*
Race				
Asian or Pacific Islander	164	56.70	162	56.10
White	78	27.00	77	26.60
American Indian, Aleut, Eskimo	18	6.20	25	8.70
Black	11	3.80	7	2.40
Hispanic or Latino	11	3.80	13	4.50
Other	4	1.40	3	1.00
No Response	3	1.00	2	0.70
Age				
Under 16	0	0.00	2	0.70
16-25	76	26.30	96	33.20
26-35	149	51.60	123	42.60
36-45	41	14.20	44	15.20
46-55	18	6.20	15	5.20
56-65	5	1.70	8	2.80
Over 65	0	0.00	1	0.30

Relationship information. At the beginning of the survey, participants were asked to think of a current romantic relationship, and answer a few basic questions about that relationship. Generally speaking, participants' romantic relationships seemed to be well established, but the sample was not dominated by a particular type of relationship (see Table 4 for details).

Most of the participants (58.50%) reported living with their romantic partners, nearly half (41.20%) reported their relationship status as married, and over a quarter (25.30%) of participants reported being with their partners for more than 8 years (see Table 5 for more details).

Table 4

Participants' Cohabitation and Relationship Status

	Freq.	%
Cohabitation		
Yes	169	58.50
No	119	41.20
No Response	1	0.30
Relationship Status		
Early dating	23	8.00
Seriously dating	84	29.10
Engaged	32	11.10
Married	134	46.40
Civil Union/Domestic Partnership	10	3.50
Other	5	1.70
No Response	1	0.30

Table 5

Lengths of Acquaintance and Relationship with Romantic Partner

	Time Partner Known		Length of Relationship	
	Freq.	%	Freq.	%
Less than 3 months	8	2.80	16	5.50
3-6 months	12	4.20	17	5.90
6-12 months	24	8.30	23	8.00
1-2 years	35	12.10	57	19.70
2-4 years	67	23.20	65	22.50
4-8 years	55	19.00	37	12.80
More than 8 years	87	30.10	73	25.30
No Response	1	0.30	1	0.30

Relationship Satisfaction. Rusbult's Investment Model Scale (IMS; Rusbult, Martz, & Agnew, 1998) measures commitment, satisfaction, quality of alternatives, and investment-size. In the present study, the satisfaction subscale of the IMS was used to measure relationship

satisfaction. The satisfaction subscale consists of five items with nine response options ranging

from 0 (*Do not agree at all*) to 8 (*Agree completely*). Scores on the subscale had good reliability

(α = .92), and exhibited a negative skew with kurtosis below 1.0 (see Table 6 for reliabilities and

descriptive statistics of the present study's scales).

Table 6

Reliability and Descriptive Statistics for Key Measures

	Cronbach's α	Items	M	SD	Kurtosis	Skew	n
Satisfaction	0.91	5	7.33	1.45	0.49	-0.92	282
Assurance-Giving							
FtF	0.88	4	5.87	1.14	2.60	-1.43	280
TMC	0.87	4	5.35	1.42	0.88	-1.12	277
Self-Disclosure							
FtF	0.70	3	5.65	1.12	0.64	-0.91	278
TMC	0.78	3	5.14	1.45	0.39	-0.88	282
Relationship-Talk							
FtF	0.76	4	5.55	1.14	0.88	-0.92	278
TMC	0.88	4	5.00	1.56	-0.01	-0.85	278

Communication channels. Frequency of use of specific communication channels was

assessed with a variation of the scale presented in Caughlin and Sharabi (2013), which simply

asked participants how frequently they communicate with their partner (on a 1 = *never* to 7 =

always scale) using FtF and several forms of TMC (on advice from Dr. Caughlin, text-messaging

and other means of semi-private internet messaging are being grouped together as a single form

of TMC). Face-to-Face conversation was the most often used form of communication (see table

7 for a breakdown of channels used). Phone calls were the most frequently used form of TMC,

but were still used significantly less than FtF conversation to communicate with a partner; $t(285)$

= 6.20 p < .001.

Table 7

Participants' Use of Different Communication Channels

	In Person	Calls		Chat		Messaging	
		Phone	Video	Video	Internet	Public Internet	Instant
All of the Time	46.4 *	25.3	10.7	9.0	15.6	11.1	30.4
Often	39.4	47.1 *	18.3	18.0	21.1	24.2 *	33.6 *
Sometimes	11.1	18.7	23.5	18.3	14.2	20.8	17.6
Rarely	1.7	7.6	22.1	23.2	20.1	19.7	10.4
Never	0.3	1.4	23.9 *	31.1 *	27.7 *	23.9	8.0
No Response	1.0	0.0	1.4	0.3	1.4	0.3	0.0

Note: n = 289. All numbers are percentages. *Modal Response for each item.

The rest of the study's measures dichotomized communication into two channels – face-to-face (FtF) communication and technology-mediated communication (TMC). Not all forms of TMC (e.g., email, social media posts, phone calls) are used universally, the distinction between some forms of TMC (e.g., texting and instant messaging) would likely be ambiguous for some participants, and any attempt to enumerate every possible form of TMC would likely be incomplete. Because of these issues, it would have been difficult to make this study's intended comparison between mediated and unmediated communication channels using more refined measures of TMC relationship maintenance, and it was preferable to have participants assess their use of mediated channels holistically.

Participants' use of maintenance behaviors across TMC and FtF. Participants were asked questions about their relational maintenance in the form of assurance-giving, self-disclosure, and relationship talk, in general, in person, and via TMC. Responses to the items were scored on a 1 (*strongly disagree*) to 7 (*strongly agree*) scale**.**

This study's measures of relational maintenance behaviors were adapted from Stafford et al.'s (2000) *expanded* version of the RMSM (originally developed by Stafford & Canary, 1991).

This version of the RMSM asks participants to indicate the extent to which they believe they personally use a number of different behaviors in their relationships. Response options are on a seven-point Likert scale, ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Stafford et al.'s expanded RMSM measures engagement in seven types of maintenance behaviors, including assurance-giving (eight items) and openness (seven items). These 15 items were presented in random order, and participants were prompted to select a response that reflected their overall use of the behavior in their relationships, and to select responses that indicated the extent to which they believed they used the behavior specifically in FtF and in TMC (for the specific wording of these items, see appendix A). Participants always saw all three versions of the items at the same time, and were prompted to respond to the non-channel-specific version first and the TMC version last. In the end, participants answered 21 items pertaining to openness, and 24 items pertaining to assurance-giving. While it would have been interesting to collect data about a larger number of more specific TMC channels which vary greatly in the richness and presence in communication they permit, it would have made comparing mediated and unmediated communication difficult.

Only a portion of these items were used in analyses reported here. The non-channel specific items were dropped for the present study. Based on insights in Stafford (2011), half of the assurance-giving items were dropped from the analysis, leaving four items to represent FtF assurances and four items to represent TMC assurances. Finally, for each channel the openness items were divided into two separate measures of relationship talk (four items) and self-disclosure (3 items). These items were mean-aggregated to provide a FtF assurance-giving score, a TMC assurance-giving score, a FtF relationship-talk score, a TMC relationship-talk score, a FtF self-disclosure score, and a TMC self-disclosure score. Descriptive statistics and reliabilities

for these scales are presented in table 6. Finally, the six scores were centered at their means

before analyses were conducted. Mean centering was achieved by subtracting the sample mean

for each score from the individual scores. As a result, centered scores of "0" represented average

engagement in the relationship maintenance strategy, negative scores represented below average

engagement in the strategy, and positive scores represented above average engagement in the

strategy. This was done to make the results of the regression models more interpretable, and to

address concerns of multicollinearity.

Analyses

Eight regression models were run using different combinations of communication

channels (TMC and FtF), and different combinations of assurance-giving and openness (either

self-disclosure or relationship-talk). These combinations of predictors are summarized in Table

8.

Given five hypotheses were being tested, a Bonferroni correction was applied, resulting

in a significance level of $\alpha = .01$. All eight regression models were significant ($p < .001$ for every

model), accounting for between 26% (TMC assurance-giving and TMC self-disclosure) and 38%

(FtF assurance-giving and FtF relationship-talk) of the variance in romantic relationship

satisfaction. The effect sizes for all models were large (the smallest effect size was ($f^2 = 0.35$).

The main effects and interaction effects of all regression models run are summarized in table 9.

Table 8

Summary of Predictor Variables Entered into Regression Models

Model	Communication Channels of Predicting Variables			
	Assurance-Giving	*Self-Disclosure*	*Relationship-Talk*	*Interaction*
1	FtF	FtF	--	Within FtF
2	FtF	TMC	--	Cross-Channel
3	FtF	--	FtF	Within FtF
4	FtF	--	TMC	Cross-Channel
5	TMC	TMC	--	Within TMC
6	TMC	FtF	--	Cross-Channel
7	TMC	--	TMC	Within TMC
8	TMC	--	FtF	Cross-Channel

Note: Romantic Relationship Satisfaction was dependent variable for all regressions.

Table 9

Summary of Regression Results for all Models

FtF Assurance-Giving Models	B	SE		TMC Assurance-Giving Models	B	SE	
Model 1				*Model 5*			
Intercept	7.25	0.08		*Intercept*	7.10	0.09	
FtF Assurances	0.73	0.10	**	TMC Assurances	0.77	0.10	**
FtF Self-Disclosure	0.16	0.10		TMC Self-Disclosure	-0.15	0.09	
Interaction	0.08	0.05		*Interaction*	0.15	0.03	**
Model 2				*Model 6*			
Intercept	7.33	0.08		*Intercept*	7.35	0.08	
FtF Assurances	0.71	0.07	**	TMC Assurances	0.30	0.06	**
TMC Self-Disclosure	0.08	0.05		FtF Self-Disclosure	0.46	0.08	**
Interaction	-0.02	0.04		*Interaction*	-0.03	0.04	
Model 3				*Model 7*			
Intercept	7.24	0.08		*Intercept*	7.05	0.09	
FtF Assurances	0.69	0.10	**	TMC Assurances	0.81	0.10	**
FtF Relationship-Talk	0.24	0.09	*	TMC Relationship-Talk	-0.12	0.08	
Interaction	0.11	0.04		*Interaction*	0.17	0.03	**
Model 4				*Model 8*			
Intercept	7.35	0.07		*Intercept*	7.31	0.08	
FtF Assurances	0.71	0.07	**	TMC Assurances	0.26	0.06	**
TMC Relationship-Talk	0.13	0.05	*	FtF Relationship-Talk	0.55	0.08	**
Interaction	0.00	0.03		*Interaction*	0.06	0.04	

Note: *p < .01, p < .001.

CHAPTER 5 – RESULTS

Hypothesis 1

Hypothesis 1 was consistently supported by each of the eight regression models.

Regardless of whether assurances were given in-person or via TMC, and regardless of what form

of openness was included in the model, giving one's partner more assurances was associated

with having a more satisfying relationship.

Assurance-giving by either channel was a significant, positive predictor of romantic

relationship satisfaction, whether self-disclosures were communicated using FtF (FtF assurance-

giving: B = 0.73, *SE* = 0.10, *p* < .001; TMC assurance-giving: B = 0.30, *SE* = 0.06, *p* < .001) or

using TMC (FtF assurance-giving: B = 0.71, *SE* = 0.07, *p* < .001; TMC assurance-giving: B =

0.77, *SE* = 0.10, *p* < .001).

Assurance-giving by either channel was also a significant, positive predictor of romantic

relationship satisfaction, whether relationship-talk was communicated using FtF (FtF assurance-

giving: B = 0.69, *SE* = 0.10, *p* < .001; TMC assurance-giving: B = 0.26, *SE* = 0.06, *p* < .001) or

using TMC (FtF assurance-giving: B = 0.71, *SE* = 0.07, *p* < .001; TMC assurance-giving: B =

0.82, *SE* = 0.10, *p* < .001).

Hypothesis 2

Model 1 regressed romantic relationship satisfaction on self-reported FtF assurances and

FtF self-disclosure [R^2 = .36, *SE* = 1.19, $F(3, 261)$ = 47.85, *p* < .001] and the effect size was

quite large (f^2 = 0.56). Model 2 regressed romantic relationship satisfaction on FtF assurances

and TMC self-disclosure [R^2 = .35, *SE* = 1.19, $F(3, 265)$ = 46.63, *p* < .001] and the effect size

was roughly the same (f^2 = 0.54). In model 1, FtF assurance-giving predicted relationship

satisfaction (B = 0.73, *SE* = 0.10, *p* < .001), but making self-disclosures in person was not

associated with having a more satisfying relationship, and FtF self-disclosure did not interact with FtF assurance-giving. In model 2, only FtF assurance-giving was a significant predictor of satisfaction (B = 0.71, *SE* = 0.07, *p* < .001).

In-person assurance-giving did not moderate the relationship between satisfaction and either FtF or TMC self-disclosure. This finding is not consistent with hypothesis 2. As figure 1 illustrates, there does *appear* to be a positive interaction between FtF self-disclosure and FtF assurance-giving. When FtF assurances are high (1 standard deviation above the mean) predicted satisfaction is 0.55 points higher when FtF self-disclosure is also high (one standard deviation above the mean), than when FtF self-disclosure is low (one standard deviation below the mean). When FtF assurances are low (one standard deviation below the mean), the difference in predicted satisfaction between high and low FtF self-disclosure is only 0.15 points. Although this fits somewhat with expectations, the difference is simply too small for the interaction effect to be significant at the .01 level, thus hypothesis 2 was not supported.

Figure 1. Regression of Romantic Relationship Satisfaction
on face-to-face assurance-giving and self-disclosure.

Hypothesis 3

Model 3 regressed romantic relationship satisfaction on self-reported FtF assurances and FtF relationship talk [$R^2 = .38$, $SE = 1.15$, $F(3, 260) = 53.08$, $p < .001$] and boasted the largest effect size of all the models ($f^2 = 0.61$). Model 4 regressed romantic relationship satisfaction on FtF assurances and TMC relationship talk [$R^2 = .37$, $SE = 1.16$, $F(3, 261) = 51.47$, $p < .001$] and its effect size was roughly comparable to model 3 ($f^2 = 0.56$). In model 3, FtF assurance-giving was a significant predictor of satisfaction (B = 0.69, $SE = 0.10$, $p < .001$), as was FtF relationship talk (B = 0.24, $SE = 0.09$, $p = .007$). In model 4, both main effects were again significant; giving assurances in person predicted greater satisfaction in the relationship (B = 0.71, $SE = 0.05$, $p < .001$), as did technology mediated discussion of the relationship (B = 0.13, $SE = 0.05$, $p = .007$). The interactions were not significant in either model, although the interaction between assurance-giving and relationship talk within the FtF channel did approach significance in model 3 (B = 0.11, $SE = 0.04$, $p = .013$).

Giving more assurances in-person and engaging in more relationship-talk in-person or via TMC were all associated with greater satisfaction in one's relationship, but the amount of assurances given in-person did not affect the relationship between satisfaction and relationship-talk by either channel. This is not consistent with hypothesis 3. The pattern observed in figure 1 does seem stronger in figure 2. When FtF assurances are low, the predicted satisfaction for someone who engages in a high amount of in-person relationship-talk would be 0.28 points higher than for someone who engages in a low amount of in person relationship-talk, but when FtF assurance-giving is high, this difference in predicted satisfaction is 0.84 points. Although FtF assurance-giving clearly appears to have an impact on the relationship between FtF relationship-

talk and romantic relationship satisfaction, the interaction effect only approached significance in model 3. Thus, hypothesis 3 was not supported.
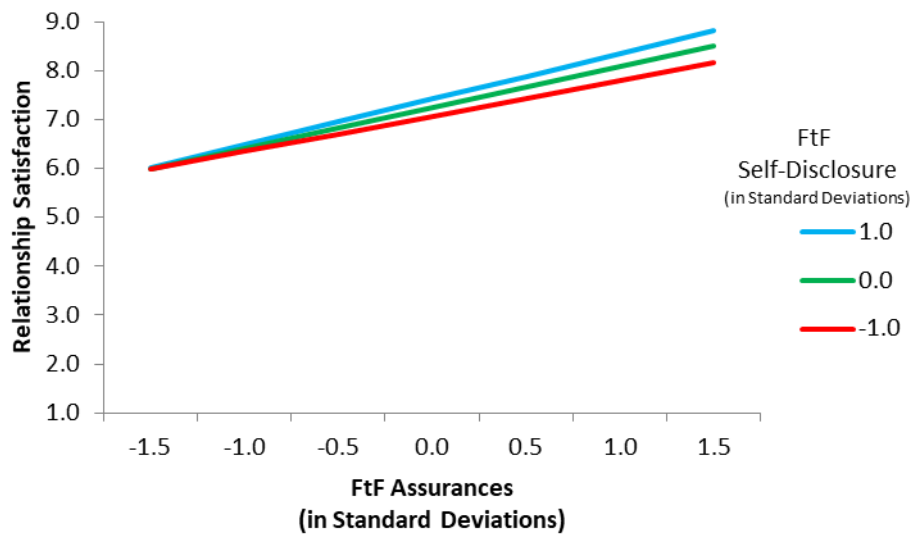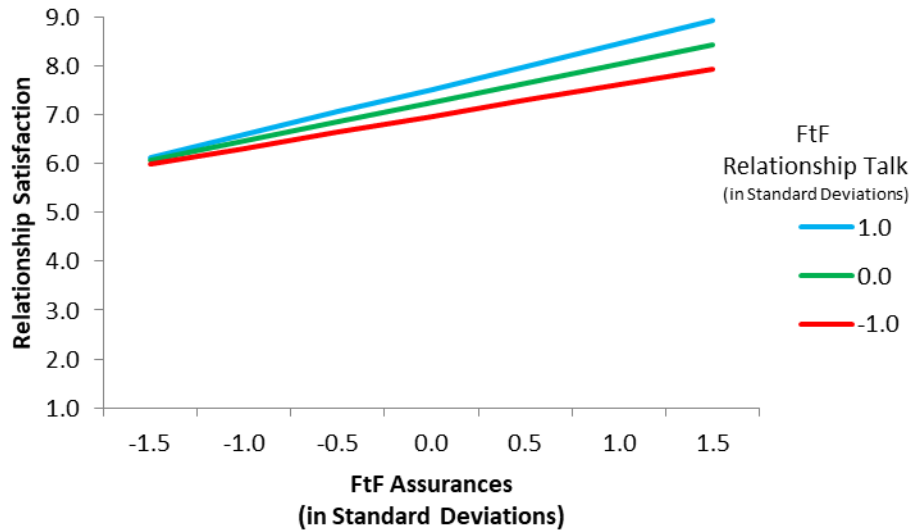

Figure 2. Regression of romantic relationship satisfaction on face-to-face assurance-giving and relationship-talk.

Hypothesis 4

Model 5 regressed romantic relationship satisfaction on TMC assurances and TMC self-disclosure [$R^2 = .26$, $SE = 1.26$, $F(3, 262) = 30.98$, $p < .001$] and had the lowest effect size of all of the models ($f^2 = 0.35$). Model 6 regressed romantic relationship satisfaction on TMC assurances and FtF self-disclosure [$R^2 = .30$, $SE = 1.24$, $F(3, 259) = 36.52$, $p < .001$] and had a larger effect size ($f^2 = 0.43$) than model 5. In model 5, making assurances via technology was associated with reporting a more satisfying relationship (B = 0.77, $SE = 0.10$, $p < .001$), but making self-disclosures via technology was not. In model 6, however, both main effects were significant; TMC assurance-giving predicted satisfaction (B = 0.30, $SE = 0.06$, $p < .001$) as did FtF self-disclosure (B = 0.46, $SE = 0.08$, $p < .001$). Consistent with expectations, there was a significant within-channel interaction between TMC assurance-giving and TMC self-disclosure

in model 5 (B = 0.15, *SE* = 0.03, *p* < .001), but not between TMC assurance-giving and FtF self-disclosure in model 6.

TMC assurance-giving moderated the relationship between self-disclosure and satisfaction, but only when the self-disclosures were also communicated via TMC. This result is consistent with hypothesis 4. As Figure 3 demonstrates, there is a dramatic interaction between TMC assurance-giving and TMC self-disclosure. When TMC assurance-giving is high, predicted satisfaction is higher when TMC self-disclosure is high than when TMC self-disclosure is low. However, when TMC assurance-giving is low, predicted satisfaction is actually lower when TMC self-disclosure is high than when TMC self-disclosure is low. Furthermore, the difference is much more dramatic at the low end of assurance-giving. For TMC assurance-giving one standard deviation above the mean, the difference between TMC self-disclosures one standard deviation above and below the mean for TMC self-disclosure is negligible (0.17 points on a 1-9 scale), but for TMC assurance-giving one standard deviation below the mean, the size of the difference is roughly six times greater (-1.06 points).
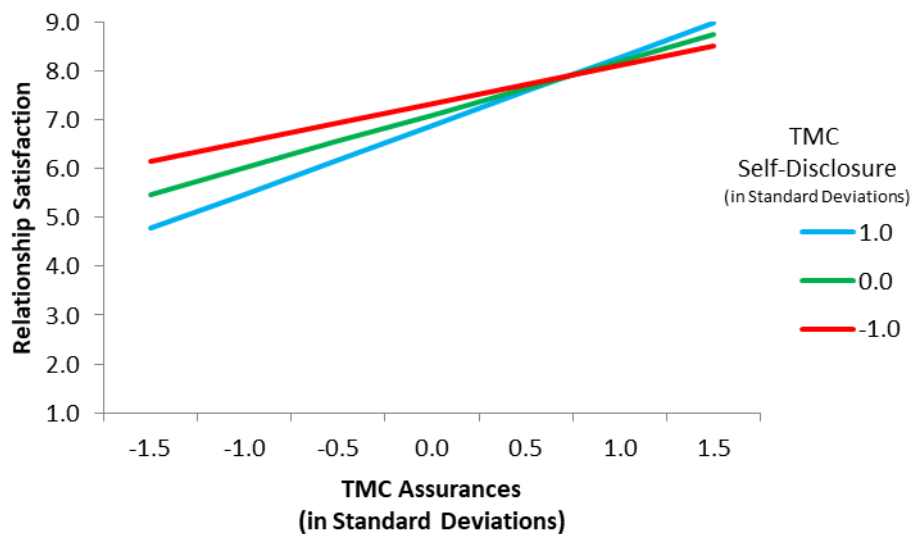
Figure 3. Regression of romantic relationship satisfaction on technology mediated assurance-giving and self-disclosure.

Hypothesis 5

Model 7 regressed romantic relationship satisfaction on TMC assurances and TMC relationship talk [R^2 = .30, SE = 1.21, $F(3, 260)$ = 37.44, p < .001]; its effect size was smaller than most of the other models, but still large (f^2 = 0.43). Model 8 regressed romantic relationship satisfaction on TMC assurances and FtF relationship talk [R^2 = .32, SE = 1.20, $F(3, 258)$ = 40.14, p < .001] and had a slightly larger effect size (f^2 = 0.47) than model 7. For model 7, the results were very similar to the within-channel regression using TMC self-disclosure (regression 5). Giving assurances via technology predicted higher relationship satisfaction (B = 0.81, SE = 0.03, p < .001) and also interacted with technology mediated relationship talk (B = 0.17, SE = 0.03, p < .001) in model 7. In model 8, TMC assurance-giving predicted satisfaction (B = 0.26, SE = 0.06, p < .001) as did FtF relationship talk (B = 0.55, SE = 0.08, p < .001), but the interaction between these predictors was not significant.

TMC assurance-giving moderated the relationship between relationship-talk and satisfaction, but only when the relationship-talk occurred via TMC. This finding is consistent with hypothesis 5. Figure 4 reveals essentially the same relationship that was observed between TMC assurance-giving and TMC self-disclosure, albeit less extreme. When TMC assurance-giving is one standard deviation above the mean, predicted satisfaction is 0.41 points higher when TMC relationship talk is one standard deviation above the mean than when it is one standard deviation below the mean. When TMC assurance-giving is one standard deviation below the mean, predicted satisfaction is 1.13 points lower when TMC relationship talk is one standard deviation above the mean than when it is one standard deviation below the mean.
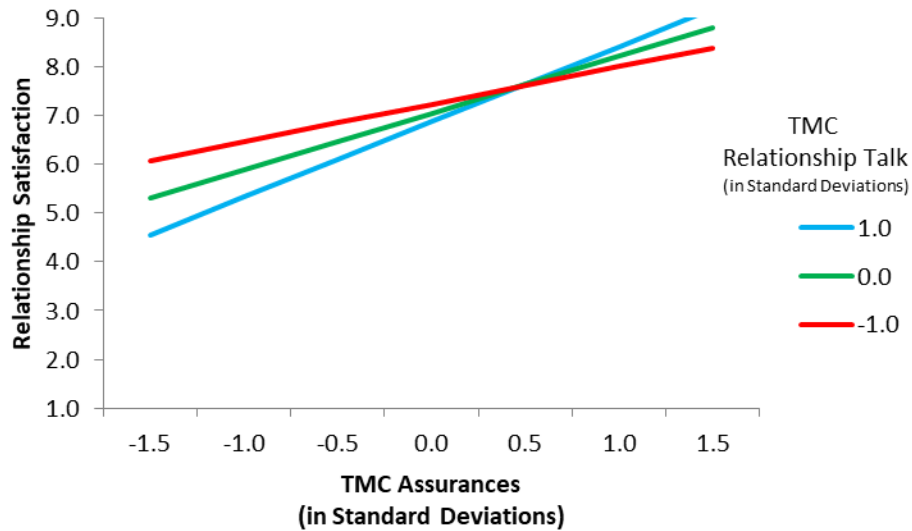
Figure 4. Regression of romantic relationship satisfaction on technology mediated assurance-giving and relationship-talk.

In both cases, this result places the 'crossover' point for the interaction above the mean for TMC assurance-giving. This means that, when an individual engages in only an average amount of technology-mediated assurance-giving, high engagement in TMC self-disclosure predicts a satisfaction score 0.7 points lower than low engagement in TMC self-disclosure, and high TMC relationship-talk predicts a satisfaction score 0.5 points lower than low TMC relationship-talk.

Summary

The results consistently support the first hypothesis; assurance-giving was a significant positive predictor of satisfaction in all eight models. The results of models 1-4 did not support the second and third hypotheses, but the results of models 5-8 did support the fourth and fifth hypotheses. Assurance-giving moderates the impact of openness strategies on satisfaction, but only when considering relational maintenance behaviors carried out via technology. For maintenance behaviors communicated within technology mediated channels, the relationship

between assurances and self-disclosures, and between assurances and relationship talk, mirrors the relationship between assurance-giving and openness observed decades ago. When enacted via TMC, the impact of open communication, either in the form of self-disclosures or relationship talk, depends upon the assurances being given by that same channel. Furthermore, unless assurance-giving is *above average*, the impact of open communication on predicted satisfaction is *negative*.

Other Observations

In addition to the hypothesized patterns predicted for the regression models run, it was also generally expected that both forms of openness would be weak or non-significant predictors of satisfaction, and that if their main-effects *were* significant in any model featuring assurance-giving by the same channel, then their effect on predicted satisfaction would be negative. The results of this study were *mostly* consistent with these expectations.

TMC relationship-talk, FtF relationship-talk, and FtF self-disclosure were significant independent predictors of satisfaction in the cross-channel models; this makes sense. In these models, relationship-talk or self-disclosure were not independent of assurance-giving communicated using the same channels, and it is likely that either form of openness appears to be a significant predictor because of high covariance with assurance-giving by the same channel. If anything, it is surprising that this was *not* true for TMC self-disclosure.

For the within-channel models, TMC relationship-talk, FtF self-disclosure, and TMC self-disclosure all conformed to expectations (their main-effects were not significant) but FtF relationship-talk *did not*. FtF relationship-talk was a significant ($p = .007$) predictor of satisfaction, independent of assurance-giving by the same channel and it was (contrary to

expectations) a positive predictor – talking about one's relationship in person predicts higher

levels of satisfaction, even when in-person assurance-giving is low.

While the size of that main-effect (B = .24) was smaller than the main-effect of

assurance-giving (B = .69) as expected for model 3, that was not the case in all of the models.

FtF self-disclosure (B = 0.46) in model 6 and FtF relationship-talk (B = 0.55) in model 8 both

boasted larger main-effects than TMC assurance-giving (B = 0.30 in model 6; B = 0.26 in model

8). In fact, in every cross-channel model, the main-effects for the FtF maintenance strategy in

that model is larger than the main-effect for the TMC maintenance strategy in the model,

regardless of which channel is being used for assurance-giving and which channel is being used

for relationship-talk or self-disclosure. One possible explanation for this may be that higher

engagement in FtF communication reflects more time spent interacting in person, and (for

mixed-modality relationships at least) couples that can spend more time together in-person may

have more satisfying relationships in general.

CHAPTER 6 – DISCUSSION

Research conducted in the 1990s observed an interaction between assurance-giving and openness when predicting romantic relationship satisfaction, but this relationship has received little attention since then. The past 20 years have seen significant alterations to how everyday communication is carried out. Technology mediated communication now plays an important role in collocated romantic relationships, yet theories developed in the 80s and 90s to describe the differences between online and offline relationships do not provide clear predictions for these relationships. This study tested relationship maintenance strategies, looking at how the maintenance strategies might interact within and across different communication channels in mixed modality romantic relationships.

This study predicted that assurance-giving by either channel would be beneficial. Consistent with past research findings, assurance-giving was consistently beneficial to relationship satisfaction, whether it was carried out in-person or using electronic media. It was also predicted that assurance-giving by either channel would interact with the relationship-talk and self-disclosure strategies, but only when it occurred by the same channel as the openness strategy in question. This was true for TMC assurance-giving, but not FtF assurance-giving. Past research has observed an interaction between assurance-giving and openness, but in the present study this was only observed within the TMC channel. The assurance-giving/openness interaction did not appear within the FtF channel, or across the TMC and FtF channels.

In mediated communication, self-disclosures and relationship-talk required above-average engagement in assurance-giving in order to be beneficial; for individuals giving only an average amount of assurances via technology, increased self-disclosure or relationship-talk

predicted lower relationship satisfaction. Notably, the detrimental impact of either form of technology-mediated openness for below average TMC assurers was greater than the beneficial impact for above average TMC assurers.

In other words, engaging in self-disclosure or relationship-talk via mediated channels may be a bad gamble. In the context of mediated communication, only those who engage in high assurance-giving stand to benefit from being more open in their relationships, and even those who engage in exceptionally high assurance-giving see only modest improvements in their satisfaction. For most individuals, disclosing more personal information or engaging in more discussion about the relationship predicts lower satisfaction, rather than higher satisfaction, and for those who are exceptionally low in their use of TMC to give assurances, the cost of increasing openness via TMC is very high. Simply put, it appears that people have much more to lose than they have to gain from sharing intimate information or discussing their relationships electronically. So, if Tony Stark needs to talk to Pepper Potts about the terrifying and ominous nightmare he experienced in *Age of Ultron*, he should likely do so in-person, and if he absolutely must discuss his fears through a mediated channel, he should make a point of also giving Pepper many assurances about the future of their relationship, because providing such comforts in-person will not mitigate the negative impact of his openness on their relationship.

This finding is consistent with research that indicates openness may be detrimental to relationship satisfaction when it is not coupled with assurance-giving. Furthermore, the fact that this finding only emerged when the maintenance strategies were carried out online may explain why there has been some inconsistency in past research findings. Self-disclosures or relationship-talks occurring in-person seem to have very little impact on satisfaction, and what impact those behaviors do have seems to be positive. The finding that openness can be

associated with reduced satisfaction when communicated using TMC but not when communicated using FtF is consistent with MRT and social presence theory. Engaging in a consequential conversation with a romantic partner, or divulging sensitive personal information to him or her, is more complicated than engaging in maintenance strategies like assurance-giving or positivity. According to MRT, the lean nature of TMC may make the challenges inherent in openness strategies more problematic. Compared to other maintenance behaviors, discussing one's relationship or sharing personal information may also require more sensitivity to a conversation partner's reactions, and that sensitivity may be lessened in TMC if – as social presence theory predicts – partners feel less awareness of each other in mediated communication. For these reasons, those attempting to disclose important personal information or discuss the status of their relationship via technology may be more likely than those doing so in-person to encounter detrimental misunderstandings or find themselves frustrated by the limitations of the medium, undermining their relationship satisfaction.

But the negative influence of relationship-talk or self-disclosure upon satisfaction was not apparent when TMC participants reported high engagement in assurance-giving; why did the interactions between openness and assurance-giving only appear within TMC and not within FtF? A key element of SIP is the assumption that relational partners engaged in mediated communication will add verbal or textual cues to their messages to compensate for the loss of nonverbal cues. It is possible that in mediated communication assurance-giving messages have a secondary function, replacing some crucial element of FtF communication (e.g., hugging), that alters how self-disclosures or relationship-talk are interpreted. If that is the case, effective TMC users may adapt to their media by increasing their engagement in assurance-giving by that

medium. Those who do not adapt in this way fail to fulfill the assumptions of SIP, and their relationships may suffer as a result.

This study predicted that self-disclosure and relationship-talk would be moderated by assurance-giving by the same channel, but not by assurance-giving by the other channel. This prediction was made based on previous speculation that a message disclosing personal information or discussing one's relationship must also include assurances within that same message to be effective. Stafford et al. (2000) suggested that the interaction between assurance-giving and openness was due to the use of such messages, which they called "assuring disclosures." If their explanation is accurate, then assurance-giving and openness would depend on immediate contemporaneity to interact with one another. If we assume that it is more difficult to integrate two communication channels into a single message than it is to use a single channel for the same message, we would expect that any assuring-disclosures would most often be communicated using a single channel. In the context of the present study, that difference between cross-channel and within-channel assuring-disclosures would have been evident in cross-channel interactions which are weaker than their comparable within-channel interactions, or are altogether nonsignificant. The results of the present study do not violate that expectation, but they do not provide definitive support for that explanation either.

In order to make any definitive conclusions in this regard, recordings of actual interpersonal communications between romantic partners, recorded sequentially over time, would need to be subjected to in-depth analysis. However, while the results of this study do not allow for such conclusions, the results for TMC openness strategies were consistent with expectations. Neither MRT nor social presence theory provide an alternative explanation for why TMC openness is moderated by TMC assurance-giving but not by FtF assurance-giving. In fact,

49

SIP's stance that TMC and FtF communication accomplish the same ends at different speeds, might lead us to infer that communication behaviors are interchangeable between TMC and FtF communication channels. From that, we might have expected that maintenance behaviors should interact without regard for what channel is used.

Implications

Stafford and colleagues (1999) suggested that relationship communication researchers should cease dichotomizing in-person and mediated communication, arguing that the two were becoming so thoroughly enmeshed that the distinction was trivial. This study strongly contradicts that claim. While assurance-giving predicts higher satisfaction whether it is communicated in person or by technology, it appears that self-disclosure and relationship-talk both function very differently when used via FtF and/or TMC channels.

In-person, relationship-talk is a weak positive predictor of satisfaction, and self-disclosure does not predict satisfaction at all. When communicated by way of technology, neither relationship talk nor self-disclosure is a significant predictor of satisfaction alone, *but* both strategies do interact with technology mediated assurance-giving. It is tempting to think that technology-mediated openness is simply toxic; we might speculate that the lack of visual cues in most forms of TMC leads to harmful misinterpretations, as MRT suggests, or that a disinhibiting effect of TMC leads to inappropriate self-disclosures or more aggressive relationship-talk. However, the fact that technology-mediated openness is *not* moderated by FtF assurance-giving as it is by TMC assurance-giving, suggests that the phenomenon observed here is more complicated than that.

Limitations

Likely, the greatest limitation of the present study is that different forms of TMC were not distinguished from one another. Voice-to-voice communication channels (e.g., phone calls, video chats) were not differentiated from text-based communication channels (e.g., texting, e-mail), despite being very different from one another. Video calls are likely of less importance to MMR romantic partners than to long distance romantic partners,[5] but participants did report using phone calls to communicate with their partners more frequently than any other form of TMC. Given that the openness/assurance-giving interaction was only replicated within TMC, comparing text-based and voice-based mediated channels instead of FtF and TMC could reveal more.

Nationality and language was another significant issue. Over half of the participants were responding from India. It is difficult to make many conclusions about the influence of nationality or culture on the study's outcomes, since a large number of respondents' locations could not be determined, and the sample was too small to separate into subsamples based on nationality. A major concern, though, is whether Indian participants would be able to read the English-language measures as well as U.S. respondents.

English is not uncommon in India, being one of two official languages used by the Indian government (the other language being a version of Hindi), over 125 million Indian citizens spoke English in 2001. However, 125 million amounts to slightly over 12% of the population at the time, and only 226,449 citizens reported speaking it as their primary language (0.02%). Participants in an online survey would likely be responding from one of India's larger cities, where English would be more commonly spoken. However, thanks in part to an initiative by the

---

[5] *Skype* and other video call applications are likely more important in romantic MMRs with lengthy or frequent work-related separations. In the present study, most participants were collocated or cohabitating, but no information was collected about work schedules or travel.

Indian government to bring internet access to rural areas, internet users who prefer an Indian language other than English (234 million users) surpassed users who prefer English (175 million users) between 2011 and 2016 ("Indian Languages – Defining India's Internet," 2017). Of these internet users, 44% reported difficulty comprehending product descriptions and reviews written in English.

There was some indication that this was an issue for the participants in this study. An unusually high percentage (6.2%) of respondents identified themselves as "American Indian, Aleut, or Eskimo." As 11 out of 18 of these participants were located in India, it seems likely that at least some of them misinterpreted the item. Similarly, while only 3.2% of Indian participants identified themselves as gay or lesbian, over 18% of participants reported their orientation was bisexual. By comparison only 7.14% of U.S. respondents identified their orientation as bisexual. This difference may reflect a genuine difference in U.S. and Indian demographics, or it may reflect a misunderstanding of the labels used.

Some participants may have had trouble understanding certain items on the survey. The survey also included an open ended item which began with the words, "When you communicate with…" but several of the responses seem to indicate that participants misread the item as "When do you communicate with…" While this item was not included in the analyses for this study, it warrants some examination of the items that were, and a couple of items in the relationship-talks measure do stand out. One item is phrased as, "I simply tell my partner how I feel about the relationship," and another states, "I like to have periodic talks about our relationship." Unfortunately, as Stafford (2011) points out, the word "simply" introduces unnecessary ambiguity to the former item, and the use of the words "like to" in the latter item, if read literally, makes it a question about attitudes towards a behavior, rather than performance of

a behavior. It is feasible that the faulty wording of these items may have increased the error variance in this study's measurements, making it more difficult to find significant differences within the data.

The wording of the TMC variants of all maintenance items may have been more problematic, as their reading level was significantly higher than their FtF counterparts. This wording may have posed a problem for some participants, especially those who were less proficient in English or who were dependent on a browser to translate the survey for them. However, much of the increased reading difficulty for the TMC items comes from the inclusion of the four-syllable word "technology" in the items. Although "technology" is a longer word, it is also very common, and is readily associated with devices like cellphones (while the shorter and still more common word, "computer," may not be).

It is also possible that presenting the items in triplets (rather than in fully random order) may have influenced results. Furthermore, presenting the items in triplets may have prompted participants to think more carefully about their responses. The items did not define words like "often," and participants were left to judge their meaning for themselves. Reading the items separately, participants would almost certainly have different standards for FtF and TMC in this regard. Seeing the items together, however, participants may have been more likely to apply the same standard to both items, making comparisons of the two channels more meaningful.

Contemporaneity and causality are critical issues, which this study does not address. No aspect of the data collected allows us to infer the directionality of cause and effect in the relationships between satisfaction and maintenance. In reality, the relationship between maintenance and satisfaction may be reciprocal, especially for a maintenance strategy like relationship-talk which partners might initiate when they sense their satisfaction in the

relationship waning. The measures used in this study also did not establish the order the maintenance behaviors are executed in, whether they were concurrent, or how far apart in time they may have been separated. Collecting that data would be very difficult. One option would be to invite couples into a lab and ask them to discuss various issues, and then record how they discuss the issues, with a pretest and posttest for relationship satisfaction. This strategy would have had the benefit of reducing common method variance, but the external validity of such an approach would be highly dubious. Another option would be to have participants record (perhaps with a smart phone app) every time they engage in one of the behaviors and note their satisfaction at that moment. Unfortunately, this would be not only costly but extremely intrusive as well.

Another issue with the potentially cyclical nature of maintenance and satisfaction lies in the decision to have participants report their own satisfaction and their own engagement in maintenance. If satisfaction and maintenance are part of a cycle of evaluation and action, then one's own relationship behaviors seem more likely to be consequences of satisfaction, while one's perceptions of their partner's relationship behaviors seem more likely to be the causes of satisfaction. However, Christensen, Sullaway, and King (1983) found that the accuracy of romantic partner's reports of each other's behaviors was associated with relationship satisfaction. If so, reports of partners' maintenance behaviors would be less reliable for participants in unsatisfying relationships; given the key outcome in this study was relationship satisfaction, proxy reports would have been problematic.

Conclusion

      Communicating assurances to one's partner predicts greater relationship satisfaction for oneself. It may be that assurance-giving in this fashion has a positive impact on one's partner and indirectly improves the relationship, or it may be that people are reticent to talk about commitment to an unsatisfying relationship. Of note in this study, though, is that this relationship emerges whether the assurances are communicated in person or via technology, making assurance-giving an all-around safe bet for people engaging in relationship maintenance. Relationship-talk and self-disclosure, however, are not safe bets.

      Directly discussing one's relationship in person predicts greater satisfaction, suggesting that such conversations may either be constructive (effectively resolving relationship problems) or that the people who are most willing to discuss their relationships in person are the people with the most satisfying relationships. While in-person relationship-talk appears either beneficial to a relationship or indicative of good qualities, that is not the case for technology mediated discussions of one's relationship. In TMC, the association between relationship satisfaction and relationship-talk depends on the assurances being given by TMC, and it appears that for anyone with average engagement or less in technology mediated assurance-giving, discussing the relationship by TMC is associated with lower satisfaction in the relationship. Unlike relationship-talk, making self-disclosures in person appears to be inconsequential to satisfaction, but (like relationship-talk) technology-mediated self-disclosures without technology-mediated assurances predict a less satisfying relationship. In short, behaviors that may be inconsequential or even beneficial in-person may be detrimental when communicated using technology, unless assurances are also being given by technology.

The stark differences this study found between in-person and technology-mediated relational maintenance indicates that channel selection should be an important consideration in romantic communication research.

REFERENCES

Altman, I., Vinsel, A., & Brown, B. B. (1981). Dialectic conceptions in social psychology: An application to social penetration and privacy regulation. In L Berkowitz (Ed.), *Advances in Experimental Social Psychology, Vol 14.* (pp. 107–160). New York: Academic Press.

Billedo, C. J., Kerkhof, P., & Finkenauer, C. (2015). The use of social networking sites for relationship maintenance in long-distance and geographically close romantic relationships. *Cyberpsychology, Behavior, and Social Networking, 18*(3), 152-157. doi: 10.1089/cyber.2014.0469

Boase, J., Horrigan, J. B., Wellman, B., & Rainie, L. (2006). The strength of internet ties: The internet and email aid users in maintaining their social networks and provide pathways to help when people face big decisions. Pew Internet & American Life Project, Washington D.C., full text available from: http://www.pewinternet.org

Canary, D. J, & Stafford, L. (1992). Relational maintenance strategies and equity in marriage. *Communication Monographs, 59*, 243-267.

Carlson, J. R., & Zmud, R. W. (1999). Channel expansion theory and the experiential nature of media richness perceptions. *Academy of Management Journal, 42*(2), 153-170.

Caughlin, J. P., & Sharabi, L. L. (2013). A communication interdependence perspective of close relationships: The connections between mediated and unmediated interactions matter. *Journal of Communication, 63*, 873-893.

Christensen, A., Sullaway, M., & King, C. C. (1983). Systematic error in behavioral reports of

     dyadic interaction: Egocentric bias and content effects. *Behavioral Assessment, 5*, 129-

     140.

Connell, J. B., Mendelsohn, G. A., Robins, R. W., & Canny, J. (2001). Effects of communication

     medium on interpersonal perceptions: Don't hang up the telephone yet! In proceedings of

     the 2001 International ACM SIGGROUP Conference on Supporting Group Work,

     Boulder, CO. Retrieve December 2013 from:

     http://www.cs.berkeley.edu/~jfc/papers/01/DHUgroup2001.pdf

Daft, R.L., & Lengel, R.H. (1986) Organizational information requirements, media

     richness and structural design. *Management Science, 32*, 554-571.

     http://dx.doi.org/10.1287/mnsc.32.5.554

Dainton, M., & Aylor, B. (2002a). Patterns of communication channel use in the

     maintenance of long-distance relationships. *Communication Research Reports,*

     19, 118–129.

Denes, A. (2012). Pillow talk: Exploring disclosures after sexual activity. *Western Journal of*

     Communication, 76(2), 91-108. doi: 10.1080/10570314.2011.651253

Favreau, J. (Director/Producer). (2008). *Iron Man* [Motion picture]. United States: Marvel

     Studios.

Favreau, J. (Director/Producer). (2010). *Iron Man 2* [Motion picture]. United States: Marvel

     Studios.

Favreau, J. (Producer) & Black, S. (Director). (2013). *Iron Man 3* [Motion picture]. United

     States: Marvel Studios.

Floyd, K., Judd, J., & Hesse, C. (2008). Affection Exchange Theory. In L. A. Baxter &

    D. O. Braithwaite (Eds.), *Engaging theories in interpersonal communication:*

    Multiple perspectives (pp. 285-294). Thousand Oaks, CA: Sage Publications, Inc.

Frisby, B. N., & Westerman, D. (2010). Rational actors: Channel selection and rational

    choices in romantic conflict episodes. *Journal of Social and Personal*

    Relationships, 27, 970-981. doi: 10.1177/0265407510378302

Gardner, W. L., Pickett, C. L., & Knowles, M. (2005). On the outside looking in:

    loneliness and social monitoring. *Personality & Social Psychology Bulletin,*

    31(11):1549-60.

Guerrero, L. K. (2008). Attachment Theory. In L. A. Baxter & D. O. Braithwaite (Eds.),

    Engaging theories in interpersonal communication: Multiple perspectives (pp.

    295-308). Thousand Oaks, CA: Sage Publications, Inc.

Guthrie, J., & Kunkel, A. (2013). Tell me sweet (And not-so-sweet) little lies: Deception in

    romantic relationships. *Communication Studies, 64*(2), 141-157. doi:

    10.1080/10510974.2012.755637

Hampton, A. J., Rawlings, J., Treger, S., & Sprecher, S. (2017). Channels of computer-mediated

    communication and satisfaction in long-distance relationships. *Interpersona, 11*(2), 171-

    187. doi:10.5964/ijpr.v11i2.273

Kalbfleisch, P. J. (2001). Deceptive message intent and relational quality. *Journal of Language*

    and Social Psychology, 20, 214-230. doi: 10.1177/0261927X01020001010

Kirk, Allie (2013). The effect of newer communication technologies on relationship maintenance

    and satisfaction in long-distance dating relationships," *Pepperdine Journal of*

Communication Research, 1(1), 3-17. Available at:

http://digitalcommons.pepperdine.edu/pjcr/vol1/iss1/2

Lapidot-Lefler, N., & Barak, A. (2012). Effects of anonymity, invisibility, and lack of eye-

contact on toxic online disinhibition. *Computers in Human Behavior, 28*, 434-443.

doi:10.1016/j.chb.2011.10.014

Lindell, A. K., Campione-Barr, N., & Killoren, S. E. (2015). Technology-mediated

communication with siblings during the transition to college: Associations with

relationship positivity and self-disclosure. *Family Relations, 64*, 563-568. doi:

10.1111/fare.12133

Mikulincer, M., & Nachshon, O. (1991). Attachment styles and patterns of self-disclosure.

Journal of Personality and Social Psychology, 61, 321-331. doi: 10.1037/0022-

3514.61.2.321

Minitab Blog Editor (April 16, 2013). Enough is enough! Handling multicollinearity in

regression analysis. *The Minitab Blog* at blog.minitab.com. Article available from:

http://blog.minitab.com/blog/understanding-statistics/handling-multicollinearity-in-

regression-analysis

Nguyen, M., Bin, Y. S., & Campbell, A. (2012). Comparing online and offline self-disclosure: A

systematic review. *Cyberpsychology, Behavior, and Social Networking, 15*(2), 103-111.

doi: 10.1089/cyber.2011.0277

Park, G. (2007). *What if? Planet Hulk* (Comic book). United States: Marvel Comics.

Parker, J. (2008). *Hulk: Raging Thunder* (Comic book). United States: Marvel Comics.

Petronio, S., & Furham, W. T. (2008). Communication Privacy Management Theory. In L. A.

    Baxter & D. O. Braithwaite (Eds.), *Engaging theories in interpersonal communication:*

    Multiple perspectives (pp. 309-322). Thousand Oaks, CA: Sage Publications, Inc.

Rabby, M. K. (2007). Relational maintenance and the influence of commitment in online and

    offline relationships. *Communication Studies, 58*(3), 315-337.

Rabby, M. K., & Walther, J. B. (2003). Computer-mediated communication effects on

    relationship formation and maintenance. In D. J. Canary & M. Dainton (Eds.),

    Maintaining relationships through communication: Relational, contextual, and cultural

    variations (pp. 141-162). Mahwah, NJ, US: Lawrence Erlbaum Associates Publishers.

Roloff, M. E., & Ifert, D. (1998). Antecedents and consequences of explicit agreements to

    declare a topic taboo in dating relationships. *Personal Relationships, 5*, 191-205.

Rusbult, C. E., Martz, J. M., & Agnew, C. R. (1998). The Investment Model Scale: Measuring

    commitment level, satisfaction level, quality of alternatives, and investment size.

    Personal Relationships, 5, 357-391

Salancik, G. R., & Pfeffer, J. (1978). A Social Information Processing Approach to Job Attitudes

    and Task Design. *Administrative Science Quarterly, 23*(2), 224–253.

Saxe, L. (1991). Lying: Thoughts of an applied social psychologist. *American Psychologist,*

    46(4), 409-415.

Short, J., Williams, E., & Christie, B. (1976). *The Social Psychology of Telecommunications*.

    Wiley; London, New York.

Singh, A., Khaitn, A., Suresh, R., & Pilla, A. S. (2017). Indian languages – Defining India's

    internet: A study by KPMG in India and Google. Available from

https://assets.kpmg.com/content/dam/kpmg/in/pdf/2017/04/Indian-languages-Defining-Indias-Internet.pdf

Stafford, L, Kline, S. L., & Dimmick, J. (1999). Home e-mail: Relational maintenance and gratification opportunities. *Journal of Broadcasting & Electronic Media, 43*(4), 659-669.

Stafford, L. (2011). Measuring relationship maintenance behaviors: Critique and development of the revised relationship maintenance behavior scale. *Journal of Social and Personal Relationships, 28*(2) 278–303. doi: 10.1177/0265407510378125

Stafford, L., & Canary, D. J. (1991). Maintenance strategies and romantic relationship type, gender and relational characteristics. *Journal of Social and Personal Relationships, 8*(2), 217-242.

Stafford, L., Dainton, M., & Haas, S. (2000). Measuring routine and strategic relational maintenance: Scale revision, sex versus gender roles, and the prediction of relational characteristics. *Communication Monographs, 67*(3), 306-323.

Stewart, M. C., Dainton, M., & Goodboy, A. K. (2014), Maintaining relationships on Facebook: Associations with uncertainty, jealousy, and satisfaction. *Communication Reports, 27*(1), 13-26. doi: 10.1080/08934215.2013.845675.

Suler, J. (2004). The Online Disinhibition Effect. *CyberPsychology & Behavior, 7*(3), 321-316.

Suler, J. (2005). The Online Disinhibition Effect. *International Journal of Applied Psychoanalytic Studies, 2*(2), 184-188.

Tidwell, L. C., & Walther, J. B. (2002). Computer-mediated communication effects on disclosure, impressions, and interpersonal evaluations: Getting to know one another a bit at a time. *Human Communication Research, 28*(3), 317–348.

Tong, S. T., & Walther, J. B. (2011). Relational maintenance and computer-mediated

    communication. In K. B. Wright & L. M. Webb (Eds.), *Computer-mediated*

    communication in personal relationships (pp. 98-118) New York: Peter Lang Publishing.

Walther, J. B. (1992). Interpersonal effects in computer-mediated interaction: A relational

    perspective. *Communication research, 19*(1), 52-90.

Walther, J. B. (1996). Computer-mediated communication: Impersonal, interpersonal, and

    hyperpersonal interaction. *Communication Research, 23*, 3-43.

Walther, Joseph; Malcolm Parks (2002). "Cues filtered out, cues filtered in: Computer-mediated

    communication and relationships". *Handbook of interpersonal communication.* 3rd

    edition: 529–563.

Watts, J. (Director). (2017). *Spider-Man: Homecoming* [Motion picture]. United States: Marvel

    Studios and Sony Pictures.

Whedon, J. (Director/Screen writer). (2012). *The Avengers/Avengers Assemble* [Motion picture].

    United States: Marvel Studios in association with Paramount Pictures.

Whedon, J. (Director/Screen writer). (2015). Avengers: Age of Ultron [Motion picture]. United

    States: Marvel Studios.

Basic Relationship Information

Please think of a current romantic partner in your life, and enter the name you call them below (this information will be used to personalize your survey).

Partner's Name: _____

Approximately how far away is _____'s home from your home? (Please choose the unit of measure you prefer and enter a number.)
- We live together
- [Partner's Name]'s home is about _____ miles away.
- [Partner's Name]'s home is about _____ kilometers away.

How long have you known [Partner's Name]?
- Less than 3 months
- 3-6 months
- 6-12 months
- 1-2 years
- 2-4 years
- 4-8 years
- More than 8 years

How long have you been romantically involved with [Partner's Name]?
- Less than 3 months
- 3-6 months
- 6-12 months
- 1-2 years
- 2-4 years
- 4-8 years
- More than 8 years

How would you describe your relationship with [Partner's Name]?
- Early dating
- Seriously dating
- Engaged
- Married
- Civil Union/Domestic Partnership
- Other (Please describe): _____

Use of Specific Communication Channels

[*Measures adapted from Caughlin and Sharabi (2013).*]

1. How often do you talk to [Partner's Name] in person?

1	2	3	4	5
Never	Rarely	Sometimes	Often	All of the time

2. How often do you talk to [Partner's Name] through phone calls.

1	2	3	4	5
Never	Rarely	Sometimes	Often	All of the time

3. How often do you talk to [Partner's Name] through public Internet messaging (e.g., Facebook wall posts)?

1	2	3	4	5
Never	Rarely	Sometimes	Often	All of the time

4. How often do you talk to [Partner's Name] through instant messaging (e.g., texting, e-mail, Facebook messaging).

1	2	3	4	5
Never	Rarely	Sometimes	Often	All of the time

5. How often do you talk to [Partner's Name] through video chat.

1	2	3	4	5
Never	Rarely	Sometimes	Often	All of the time

6. How often do you talk to [Partner's Name] through Internet chat?

1	2	3	4	5
Never	Rarely	Sometimes	Often	All of the time

Segmentation/Integration of Communication

[*Measures adapted from Caughlin and Sharabi (2013).*]

We have many ways of communicating with our partners besides face-to-face conversation, many of which involve some form of technology. When you communicate with [Partner's Name] via technology, how do you communicate most often? (e.g., By text? By phone call?)

_____[Open ended response]_____

Please think about your conversations with [Partner's Name] and indicate your agreement with the following statements:

1. "There are some topics we only talk about in person."

              0   1   2   3   4   5   6
Do not agree at all   Agree completely

2. "There are some topics we only talk about through technology."

              0   1   2   3   4   5   6
Do not agree at all   Agree completely

3. "When we communicate via technology, the conversation feels slow."

              0   1   2   3   4   5   6
Do not agree at all   Agree completely

4. "When we communicate via technology, the conversation feels private."

              0   1   2   3   4   5   6
Do not agree at all   Agree completely

5. "When we communicate via technology, the conversation feels restrictive or constraining."

              0   1   2   3   4   5   6
Do not agree at all   Agree completely

6. "When we communicate face-to-face, the conversation feels slow."

              0   1   2   3   4   5   6
Do not agree at all   Agree completely

7. "When we communicate face-to-face, the conversation feels private."

                  0   1   2   3   4   5   6
Do not agree at all   Agree completely

8. "When we communicate face-to-face, the conversation feels restrictive or constraining."

                  0   1   2   3   4   5   6
Do not agree at all   Agree completely

9. "Conversations which begin using technology often continue when we are talking face-to-face."

                  0   1   2   3   4   5   6
Do not agree at all   Agree completely

10. "Conversations which begin face-to-face often continue when we are communicating via technology."

                  0   1   2   3   4   5   6
Do not agree at all   Agree completely

11. "I sometimes feel discomfort when we transition from talking via technology to talking in person."

                  0   1   2   3   4   5   6
Do not agree at all   Agree completely

12. "I sometimes feel discomfort when we transition from talking in person to talking via technology."

                  0   1   2   3   4   5   6
Do not agree at all   Agree completely

Relationship Satisfaction

[Items from satisfaction subscale of Rusbult's Investment Model Scale (IMS; Rusbult, Martz, & Agnew, 1998).]

Please indicate the degree to which you agree with each of the following statements regarding your relationship with [Partner's Name].

1. I feel satisfied with our relationship.
   0   1   2   3   4   5   6   7   8
   Do not agree at all   Agree completely
2. My relationship is much better than others' relationships.
   0   1   2   3   4   5   6   7   8
   Do not agree at all   Agree completely

3. My relationship is close to ideal.
   0   1   2   3   4   5   6   7   8
   Do not agree at all   Agree completely

4. Our relationship makes me very happy.
   0   1   2   3   4   5   6   7   8
   Do not agree at all   Agree completely

5. Our relationship does a good job of fulfilling my needs for intimacy, companionship, etc.
   0   1   2   3   4   5   6   7   8
   Do not agree at all   Agree completely

Relational Closeness

Items adapted from Vangelisti and Caughlin's (1997) Measure of Psychological Closeness.
Rating scale is on a range of 1 to 7.

1. How close are you to [Partner's Name]?

                 0   1   2   3   4   5   6
    Not close at all   Very close

2. How much do you like [Partner's Name]?

                 0   1   2   3   4   5   6
    Do not like at all   Like very much

3. How often do you talk about personal things with [Partner's Name]?

                 0   1   2   3   4   5   6
      Never   Very often

4. How important is [Partner's Name]'s opinion to you?

                 0   1   2   3   4   5   6
    Not at all important   Very important

5. How important is your relationship with [Partner's Name]?

                 0   1   2   3   4   5   6
    Not at all important   Very important

Relational Power

Items are from the Sexual Relationship Power Scale (Pulerwitz et al., 2000)

1. Most of the time, we do what my partner wants to do.

1	2	3	4
Strongly Agree	Agree	Disagree	Strongly Disagree

2. My partner won't let me wear certain things.

1	2	3	4
Strongly Agree	Agree	Disagree	Strongly Disagree

3. When my partner and I are together, I'm pretty quiet.

1	2	3	4
Strongly Agree	Agree	Disagree	Strongly Disagree

4. My partner has more say than I do about important decisions that affect us.

1	2	3	4
Strongly Agree	Agree	Disagree	Strongly Disagree

5. My partner tells me who I can spend time with.

1	2	3	4
Strongly Agree	Agree	Disagree	Strongly Disagree

6. I feel trapped or stuck in our relationship.

1	2	3	4
Strongly Agree	Agree	Disagree	Strongly Disagree

7. My partner does what he/she wants, even if I do not want him/her to.

1	2	3	4
Strongly Agree	Agree	Disagree	Strongly Disagree

8. I am more committed to our relationship than my partner is.

1	2	3	4
Strongly Agree	Agree	Disagree	Strongly Disagree

9. When my partner and I disagree, he/she gets his/her way most of the time.

1	2	3	4
Strongly Agree	Agree	Disagree	Strongly Disagree

10. My partner gets more out of our relationship than I do.

1	2	3	4
Strongly Agree	Agree	Disagree	Strongly Disagree

11. My partner always wants to know where I am.

1	2	3	4
Strongly Agree	Agree	Disagree	Strongly Disagree

The following items are from the Decision-Making Dominance Factor/Subscale Sexual Relationship Power Scale (Pulerwitz et al., 2000)

12. Who usually has more say about whose friends to go out with?

Your Partner   Both of You Equally   You

13. Who usually has more say about what you do together?

Your Partner   Both of You Equally   You

14. Who usually has more say about how often you see one another?

Your Partner   Both of You Equally   You

15. Who usually has more say about when you talk about serious things?

Your Partner   Both of You Equally   You

16. In general, who do you think has more power in your relationship?

Your Partner   Both of You Equally   You

Relational Maintenance Across Channels

Please indicate the extent to which each of the following statements accurately reflects the way that you maintain your relationship with [Partner's Name]. Do not indicate agreement with things that you think you should do, or with thing you did at one time but no longer do. That is, think about the everyday things you actually do in your relationship right now. Remember that much of what you do to maintain your relationship can involve mundane or routine aspects of day-to-day life.
Scale is: 1 (strongly disagree) to 7 (strongly agree)

RO1Gen.   I encourage my partner to share his/her feelings with me.
RO1FtF.   When talking face-to-face, I encourage my partner to share his/her feelings with me.
RO1TMC. When communicating via technology, I encourage my partner to share his/her feelings with me.

RO2Gen.   I simply tell my partner how I feel about the relationship.
RO2FtF.   I simply tell my partner how I feel about the relationship face-to-face.
RO2TMC. I simply tell my partner how I feel about the relationship via technology.

RA1Gen.   I say "I love you."
RA1FtF.   I say "I love you," when we talk face-to-face.
RA1TMC.   I say "I love you," when we communicate via technology.

RA2gGen.   I show my love for my partner.
RA2FtF.   I show my love for my partner when talking face-to-face.
RA2TMC.   I show my love for my partner when communicating via technology.

RA3Gen.   I imply that our relationship has a future.
RA3FtF.   When talking face-to-face, I imply that our relationship has a future.
RA3TMC. When communicating via technology, I imply that our relationship has a future.

RA4Gen.   I tell my partner how much s/he means to me.
RA4FtF.   I tell my partner how much s/he means to me when we talk face-to-face.
RA4TMC. I tell my partner how much s/he means to me when we communicate via technology.

RA5Gen.   I talk about our plans for the future.
RA5FtF.   I talk about our plans for the future face-to-face.
RA5TMC. I talk about our plans for the future via technology.

RO3Gen.   I talk about my fears.
RO3FtF.   I talk about my fears face-to-face.
RO3TMC. I talk about my fears via technology.

RO4Gen.   I disclose what I need or want from the relationship.
RO4FtF.   When talking face-to-face, I disclose what I need or want from the relationship.

RO4TMC. When communicating via technology, I disclose what I need or want from the relationship.

RA6Gen. I stress my commitment to him/her.
RA6FtF. I stress my commitment to him/her when talking face-to-face.
RA6TMC. I stress my commitment to him/her when communicating via technology.

RA7Gen. I show my partner how much s/he means to me.
RA7FtF. When talking face-to-face, I show my partner how much s/he means to me.
RA7TMC. When communicating via technology, I show my partner how much s/he means to me.

RA8Gen. I talk about future events (e.g., having children, or anniversaries, or retirement, etc.).
RA8FtF. I talk about future events face-to-face.
RA8TMC. I talk about future events via technology.

RO5Gen. I like to have periodic talks about our relationship.
RO5FtF. I like to have periodic talks about our relationship face-to-face.
RO5TMC. I like to have periodic talks about our relationship via technology.

RO6Gen. I am open about my feelings.
RO6FtF. When talking face-to-face, I am open about my feelings.
RO6TMC. When communicating via technology, I am open about my feelings.

RO7Gen. I talk about where we stand.
RO7FtF. I talk about where we stand face-to-face.
RO7TMC. I talk about where we stand via technology.

Demographics

The following questions will ask you to provide some basic demographic information about yourself and your partner.

I would consider my race/ethnicity to be…
(Please check all that apply)
- American Indian, Aleut, Eskimo
- Asian or Pacific Islander
- Black
- Hispanic or Latino
- White
- Other (Please specify):
  _____

I would consider my gender to be…
- Female
- Male
- Transgender
- Other (Please specify):
  _____

I would consider my sexual orientation to be…
- Heterosexual/Straight
- Bisexual
- Gay
- Lesbian
- Other (Please specify):
  _____

I consider my partner's race/ethnicity to be…
(Please check all that apply)
- American Indian, Aleut, Eskimo
- Asian or Pacific Islander
- Black
- Hispanic or Latino
- White
- Other (Please specify):
  _____

I would consider my partner's gender to be…
- Female
- Male
- Transgender
- Other (Please specify):
  _____

I would consider my partner's sexual orientation to be…
- Heterosexual/Straight
- Bisexual
- Gay
- Lesbian
- Other (Please specify):
  _____