

Include me in your Facebook : relationship
awareness on Facebook influences romantic
partners' relationship satisfaction and perceived
partner commitment

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Include Me in Your Facebook: Relationship Awareness on Facebook Influences Romantic
Partners' Relationship Satisfaction and Perceived Partner Commitment

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Abstract

Relationship awareness—paying attention to one’s relationship—is critical for sustaining a romantic partnership (Acitelli, 1993, 2002). Previous research on relationship awareness has concentrated on its effects on relationships following face-to-face communication between romantic partners (e.g., Acitelli, 1988; Cate, Koval, Lloyd, & Wilson, 1995). Technological advancement has substantially diversified romantic partners’ means of communication. Digitized interactions including texting, emails, and social networking sites (SNSs) have substituted a considerable portion of face-to-face interactions. Particularly, SNSs have greatly affected the initiation, maintenance, and dissolution of romantic relationships (e.g., Fox & Warber, 2013; Marshall, Bejanyan, Di Castro, & Lee, 2013; Sosik & Bazarova, 2014). However, there is a gap in the existing literature on relationship awareness and the current diversification of romantic interactions among partners. Accordingly, this thesis examined relationship awareness on the most prevalent SNS—Facebook.

This thesis investigated how one partner’s relationship awareness as expressed on Facebook influences the other partner’s relationship satisfaction. These behaviors were hypothesized to increase partners’ relationship satisfaction. Furthermore, the perceived partner commitment was hypothesized to mediate this effect.

I conducted four studies to examine the association between relationship awareness and partner’s relationship satisfaction. First, in a field study (Study 1), I demonstrated that an individual’s use of linguistic markers of relationship awareness in Facebook status updates (i.e., first-person plural nouns and possessive words) were positively correlated with the partner’s relationship satisfaction (assessed as a tendency to use positive words in status updates as well as a measure of subjective well-being). Subsequently, I experimentally manipulated the introduction (Studies 2 and 3) and removal (Study 4) of Facebook cues of relationship awareness to further test their effects on partners’ relationship satisfaction and

the effect of perceived partner commitment. The results showed that individuals' posting of dyadic photos and a partnered relationship status on Facebook (i.e., cues of relationship thinking) caused their partner to experience higher perceived partner commitment.

Furthermore, the introduction (removal) of these cues increased (decreased) the partner's relationship satisfaction. In contrast, although tagging the partner in status updates (i.e., cues of relationship talking) increased the partner's relationship satisfaction, it had no effect on perceived partner commitment.

The present study deepens our understanding of relationship awareness on Facebook, and has implications for the research on the interpersonal perception of romantic partners. Furthermore, the results also illuminate the current rituals of romantic relationships on SNSs among young people, and prompt future studies investigating the detailed content of online self-disclosure, as well as each romantic partner's relationship experience.

Include Me in Your Facebook: Relationship Awareness on Facebook Influences Romantic Partners' Relationship Satisfaction and Perceived Partner Commitment

Many people desire and seek to establish a highly satisfying relationship. The level of satisfaction in a romantic relationship is defined as the degree of positive feelings towards the partner and the relationship (Guerrero, Anderson, & Afifi, 2011). Whether a relationship is satisfying or not has a profound influence on individuals' emotions, daily functioning, and well-being (Baumeister & Leary, 1995), as well as more specific factors such as romantic partners' conflict resolution (Cramer, 2002), mood (Randall, Post, Reed, & Butler, 2013), relationship duration (Simpson, 1987), health (Whisman, 2001), and overall life satisfaction (Guerrero et al., 2011). As such, the factors that contribute to relationship satisfaction are one of the most extensively scrutinized topics in relationship science.

Relationship awareness is a key contributor to relationship satisfaction (Acitelli, 1993, 2002; Cate, Koval, Lloyd, & Wilson, 1995). It essentially means that an individual pays attention to his/her relationship. Past research has prioritized two major forms of relationship awareness—relationship thinking and talking (Acitelli, 1996, 2002)—which both have positive associations with relationship well-being. For example, studies have shown that when an individual in a romantic relationship frequently thinks and talks about his/her relationship, it makes the partner more content (Acitelli, 1993) and helps to build a quality relationship (Steers, Øverup, Brunson, & Acitelli, 2016; Tan, Overall, & Taylor, 2012).

Facebook, is an online multimedia communication platform that allows its users to create a public (or semi-public) profile about themselves and interact with friends on the same site (Ellison & Boyd, 2013). On Facebook, people can express their own opinions, join groups that interest them, read news, follow people, communicate with friends, and so forth. With the prevalence of Facebook communication, relationship awareness can now be demonstrated and perceived on Facebook. Facebook is one of the most popular social

networking sites (SNSs) with over 1.5 billion users, and has become a major part of people's daily communication (Statista, 2016a). In every 60 seconds, 293,000 status updates and 136,000 photos are posted on Facebook (Zephoria, 2017). Facebook users can express a great quantity and broad range of information about themselves. For instance, they can share their hometown information, post selfies as profile photos, and express their opinions on current events and culture. Through these channels of self-expression, romantic partners can reveal information about their relationships, such as posting their relationship status or photos of them as a couple (Christofides, Muise, & Desmarais, 2009). Hence, Facebook content can signify users' relationship awareness (Steers et al., 2016). Although there is a plethora of research on relationship awareness, as well as research on the influence of Facebook on romantic relationships (e.g., Saslow, Muise, Impett, & Dubin, 2013; Sosik & Bazarova, 2014; Tokunaga, 2011), there is sparse research linking relationship awareness to Facebook. As such, manifestations of relational awareness on Facebook, and the consequences of these manifestations for relationships, require detailed examination.

To address this gap in the literature, I examined how relationship awareness manifested on Facebook influences partners' relationship satisfaction in this thesis. Specifically, I conducted four studies, consisting of one field study and three experiments. I propose that an individual's relationship awareness on Facebook increases his/her partner's relationship satisfaction and perceived partner commitment. Furthermore, I propose that perceived partner commitment mediates the association between relationship awareness and relationship satisfaction.

This thesis contributes to relationship awareness research in at least two ways. First, given the key role that Facebook plays in the romantic relationships of today's young generation, this thesis provides insights into what this prevalent communication platform brings to relationship awareness. Past research on relationship awareness has primarily

examined romantic partners' offline interactions (cf. Steers et al., 2016), with little attention being paid to how relationship awareness in an online context like Facebook affects romantic partners. The present investigation can potentially inform young adults of practical strategies to maintain a relationship via Facebook. Second, this research focuses on the relationship experience of the perceiver and his/her interpretation of relationship awareness. Previous studies primarily focused on individuals demonstrating the relationship awareness, rather than the one perceiving it. A satisfying relationship requires both partners to engage in continuous and effortful maintenance (e.g., Weigel, 2008), with each taking turns to be the perceiver of relationship awareness. Therefore, studying the perceiving partner is necessary to complement the existing knowledge of relationship awareness.

Relationship Awareness in Romantic Relationships

Relationship awareness is defined as the process of “focusing attention on one’s relationship or on interaction patterns, comparisons and contrast between partners in a relationship, including attending to the couple or relationship as an entity” (Acitelli, 2002, p. 96). Essentially, it is the process of paying attention to the relationship. Maintaining a satisfying relationship is laborious, as it requires both romantic partners to actively attend to the relationship. Hence, relationship awareness can be considered as a key component of relationship maintenance (Acitelli, 1992, 1993, 2001). To facilitate the comprehension of relationship awareness, researchers often compare it with the concept of self-awareness, or the act of paying attention to the self. For example, when a person looks into a mirror, his/her attention is directed toward the self, which increases his/her self-awareness. Similarly, when a person examines a dyadic photo containing him/herself and the partner, that person’s attention might be drawn to his/her romantic relationship, and various thoughts about the relationship that are associated with the photo might arise. This process would cause the person’s relationship awareness to increase (Brunson, 2011).

To study the effects of relationship awareness, researchers have focused on its two major forms—thinking and talking about relationships, or *relationship thinking* and *relationship talking*, respectively (Acitelli, 1993, 2008). Relationship thinking refers to an individual's cognitive process of reflecting on his/her interaction pattern with the romantic partner. Relationship talking refers to how partners communicate with each other regarding their interaction patterns and ongoing processes within the relationship. Both forms of relationship awareness play distinct roles in relationship processes and are necessary for maintaining a healthy relationship. Specifically, in making efforts to attend to a relationship, thinking about the ongoing relationship allows individuals to understand their relationship status and adjust their own behaviors when interacting with the partner according to the partner's need (Acitelli, 2002; Cate et al., 1995). Furthermore, talking about the relationship can improve communication—by voicing his/her opinions and attitudes about the relationship, an individual can inform the partner of the relationship's status (Greene, Derlega & Mathews, 2006; McAdams, 1984).

Relationship Thinking

As noted previously, relationship thinking refers to an individual's cognitive process of reflecting on the relationship and interaction patterns with the partner (Acitelli, 1992). It occurs within the individual's mind: when the relationship is the focus of an individual's thoughts, such as when considering how the partner treats the individual or when recalling an interaction with the partner. To probe its effects in relationships, researchers have operationalized relationship thinking in several ways. Acitelli (1993) regarded relationship thinking as spouses' making of spontaneous relationship statements when describing their marriage. She found that husbands' relationship thinking was positively associated with wives' relationship satisfaction. Cate and colleagues (Cate et al., 1995) broadly defined relationship thinking as a "conscious thoughts process that focused on relationship partners,

relationship events, aspects of the partner and subjective condition that have emerged through partner interaction” (Cate et al., 1995, p. 78). They used an open-ended questionnaire that asked participants to report the content of the thoughts that arose when considering significant aspects of their romantic relationship. Subsequent factor analysis revealed three major topics of relationship thinking: positive affect thinking (i.e., focusing on positive affect in the relationship), partner thinking (i.e., concerns about the partner’s positivity toward the relationship), and network thinking (i.e., concerns about how well one gets along with the partner’s family and friends). These topics had differing functions in relationships. Specifically, positive affect thinking enhanced individuals’ own relationship satisfaction and perception of positive relationship outcomes. By contrast, partner thinking was found to be distressing and negatively influenced individuals’ own relationship satisfaction. Network thinking was considered a more neutral form of relationship thinking, and had no associations with relationship outcomes.

Relationship thinking also occurs when one takes the relationship as a lens in interacting with the social surroundings (Acitelli, 1993), i.e., taking a relationship perspective. Such kind of relationship thinking does not require a person’s deliberate attention toward the relationship per se; therefore, it is relatively implicit (Acitelli, 2002). Typically, individuals who think more about their relationship are relationship-oriented and regard relationships as essential (Acitelli et al., 1999; Herzog, Franks, Markus & Holmberg, 1998). For those in a romantic relationship, they are likely to integrate their romantic relationship and partner when interacting with the social world (Acitelli et al., 1999). Garrido and Acitelli (1999) asked participants to rate how well terms pertaining to relationship orientation described them. These terms included “friendly,” “caring about other,” “friend” and “son/daughter.” They found that individuals who were more relationship-oriented, i.e., considered themselves as more caring, friendly, and so on, took more responsibility in doing

household work in the family than those were less relationship-oriented. This result further suggests that thinking about relationship can lead to constructive behaviors in a relationship. For those in a married relationship, relationship thinking implies the tendency one sees the self as part of the couple—having a couple identity (Acitelli et al., 1999). In a study examining how couple identity influenced spousal stress in the family context, researchers found that couple identity could reduce the negative effect and increase the positive effect of family stressors on spouses' mental health (Badr et al., 2007).

Relationship Talking

In addition to the thoughts about a relationship, it is also important for romantic partners to have relationship talking: to raise and discuss issues related to the relationship. Relationship talking allows individuals to verbalize and communicate their relationship-related thoughts, which helps to keep each partner updated on the status of the relationship, and promotes mutual understanding (Cate et al., 1995; McAdams, 1984).

Individuals can explicitly talk about their relationship. Such kind of relationship talking refers to statements about interaction patterns, comparisons, or contrasts between partners in the relationship—that is, talking about “us.” An example would be if one partner tells the other, “I like this gift. You are so sweet to me. We are a perfect pair.” Relationship talking is typically studied by analyzing the content of partners' conversations and counting the frequency of statements pertaining to the relationship (Acitelli, 1992; Tan et al., 2012). Conversely, individual can also implicitly talk about their relationship, which is measured using relational terms. Specifically, it is reflected by the degree of “we-ness” during self-expression. “We-ness” refers to a person's tendency to use “we” words—first-person plural nouns and possessives—to reference this person's partner and him/herself (Acitelli, 2008). Essentially, a person's linguistic characteristics can reflect how he/she interacts with the social world (Pennebaker, Mehl, & Niederhoffer, 2003). During self-expression, emphasizing

the partner and the relationship suggests that the person sees the relationship as an entity. Indeed, past studies have revealed that the usage of “we” words is linked with a couple’s shared identity and cognitive interdependence (Slatcher, 2009). Hence, “we” words mark a person’s relational perspective and serve as a proxy for relationship awareness (Bazarova, Taft, Choi, & Cosley, 2012; Brunson, Acitelli, & Sharp, 2015); the higher the frequency of use of “we” words, the greater one’s relationship awareness.

Relationship talking and thinking are interrelated, but different. A person who often talks about a relationship is more likely to reflect on it; likewise, one who habitually embraces a relational perspective can be more voluntarily to talk in a relational manner. Relationship thinking typically proceeds relationship talking; however, relationship thinking can happen without been “talked” about (Acitelli & Badr, 2005). As such, the major difference between relationship talking and relationship thinking is whether the relationship awareness is communicated. Relationship talking is the verbally expressed relationship awareness and requires audiences, while relationship thinking is the cognitive process of one’s relationship awareness that occurs at the individual level and does not requires audiences. Acitelli and Badr (2005) found that only thinking without talking about the relationship was detrimental for couples’ relationship well-being, due to their lack of effective relational communication.

Relationship Awareness and Relationship Satisfaction in Face-to-Face communication

Numerous studies have established that being relationship aware has a generally positive association with relationship satisfaction. Research focusing on relationship thinking has found that partners reflecting on their interaction patterns enables themselves to understand their relationship status, which can facilitate their future communication and interaction, and further enhance their relationship satisfaction (Cate et al., 1995). When partners think about the positive aspects of their relationship, their own relationship

satisfaction is likely to increase (Acitelli, Rogers, & Knee, 1999; Cate et al, 1995).

Furthermore, during conflicts, such positive relationship thoughts also enhance each partner's positive perception about the relationship, which aid in relationship maintenance (Acitelli, 1988, 1993). In addition, seeing oneself as part of a couple fosters a couple-centric view when interacting with the world and leads one to prioritize issues that benefit the relationship (Acitelli, 1993, 2002). Married couples who have a strong couple identity have higher relationship satisfaction than do those with a weak couple identity (Acitelli et al., 1999).

Relationship talking has been consistently found to play a constructive role in achieving relationship satisfaction as well (e.g., Acitelli, 1988, 1992, 1993; Tan et al., 2012). In a pioneering study on relationship talking (Acitelli, 1988), married couples were asked to read conversations between hypothetical spouses that involved distinct degrees of relationship talking; then, they estimated the spouses' relationship satisfaction. The results showed that spouses who engaged in relationship talking were evaluated as being more satisfied with the relationship than were those who did not engage in relationship talking (Acitelli, 1988). A study that analyzed couples' actual conversations later corroborated these results (Tan et al., 2012). More specifically, Tan and colleagues showed that relationship-focused disclosure between romantic partners (i.e., relationship talking) prompted a sense of connectedness between them, and signaled partners' relational investment. Furthermore, relationship talking was positively associated with the couples' overall relationship quality, regardless of the level of warmth or intimacy of the conversation. Relationship talking even predicted individuals' positive evaluation of the relationship after a 12-month interval (Tan et al., 2012).

Regarding the relationship talking reflected in "we" words, research shows that a high frequency of "we" words is positively correlated with partners' problem-solving skills in conflicts, as well as their relationship quality (Alea, Singer, & Labunko, 2015; Williams-

Baucom, Atkins, Sevier, Eldridge & Christensen, 2010). Being relationship aware also has a healing effect: Slatcher and Pennebaker (2006) showed that after a traumatic experience, individuals who wrote about their relationships tended to express more positive emotions and have more long-lasting relationships than did those who wrote about other activities

In sum, the extant research on relationship awareness has concentrated on couples' interactions in a face-to-face context. The findings of these studies have generally indicated that relationship awareness is positively associated with partners' relationship satisfaction. However, researchers have primarily focused on the partner who demonstrates relationship awareness, whereas the partner who perceives it has received less attention. Furthermore, the studies conducted so far have been primarily correlational or qualitative in nature: experiments directly manipulating relationship awareness are less frequently observed; furthermore, the underlying mechanism of why relationship awareness enhances relationship satisfaction has not been elucidated.

Relationship Awareness on Facebook

Given the focus of past relationship awareness research on couples' face-to-face interactions, it is important to investigate the effects of relationship awareness in online interactions, specifically those on Facebook. The development of Internet technology has made SNSs a ubiquitous tool for interaction. Facebook has become an integral part of romantic partners' everyday communication. The influence of Facebook on romantic relationship has been studied before: Individuals use Facebook to initiate, maintain, and end their relationships (e.g., Fox, Warber, & Makstaller, 2013), as well as monitor (Marshall et al., 2013; Tokunaga, 2011) and display affection for their partners (Papp, Danielewicz, & Cayemberg, 2012). Furthermore, as in face-to-face interactions, an individual can demonstrate and perceive relationship awareness on Facebook (Steers et al., 2016). For example, partners post pictures of themselves and declare their relationship status

(Christofides et al., 2009), and these behaviors have become common. However, there is limited knowledge of the manifestations of relationship awareness on Facebook and their influence on relationships.

Features of Facebook Communication

SNSs have penetrated myriad aspects of life, such as work life (Herlle, & Astray-Caneda, 2012; Robertson & Kee, 2017), family (Placencia & Lower, 2013), and romantic relationships (Smith & Duggan, 2013), and can influence individuals' emotions (Kramer, Guillory, & Hancock, 2014) and well-being (Baker & Algorta, 2016). One third of the world population, of all ages, actively uses SNSs (Statista, 2016b). Survey data have revealed that users dedicate an average of 2 hours per day to SNSs (Statista, 2016c). Of all SNSs, Facebook has the largest number of users and is the most widely used globally.

Researchers have identified key characteristics of Facebook communication that differentiate it from face-to-face communication, including asynchronization in communication (Ryan & Xenos, 2011; Stephanie, Murray, & Drummond, 2016), directionless in spread of information (Bazarova, 2012; Gilbert & Karahalios, 2009), and the fact that Facebook information can be tracked. More specifically, the asynchronization in communication refers to how users can immediately post messages on Facebook; however, the receivers of that message are not immediately obligated to respond. Indeed, receivers can decide when to reply or even to not reply to the message at all. Moreover, users' Facebook friends typically range from close friends and family members to mere acquaintances and work colleagues. This renders information posted on Facebook directionless: that is, messages on Facebook can be generated without a specific recipient, and all Facebook friends with permission can view or share such messages. Finally, users' activities are automatically recorded and displayed on their Facebook page. This allows users to keep track of the most up-to-date information on friends, as well as refer to earlier events.

Characteristics of Relationship Awareness on Facebook

One significant change that Facebook brought to the manifestation of relationship awareness is that it makes relationship thinking and relationship talking indiscriminable. As discussed earlier, one major aspect that distinguishes relationship talking and thinking is whether relationship awareness is communicated. Specifically, relationship talking requires audience; however, relationship thinking does not. Facebook naturally brings in audience to individuals' posts. Therefore, an individual's personal thoughts are voluntarily communicated to Facebook friends. The communicative nature of Facebook makes the aspect that discriminate relationship talking and thinking in traditional face-to-face context no longer applicable. Manifestations of relationship awareness cannot be simply categorized as relationship talking or thinking; instead, they should be treated as unique forms of relationship awareness specific to Facebook.

Facebook has also changed the demonstration and perception of relationship awareness. First, as a multimedia platform, Facebook allows users to demonstrate relationship awareness via a variety of ways in textual and visual forms. For example, to mention one's partner when describing a dating experience, a user can reference the partner using "we" words or tagging the partner on Facebook status updates or posts. To describe an interaction episode with the partner, one may just post a photo taken together with the partner. Hence, romantic partners can communicate their relationship awareness using Facebook beyond typical face-to-face interactions (Steers et al., 2016). Next, Facebook also reduces the labor needed to demonstrate relationship awareness. The communication of relationship awareness can be done with a few clicks, and is not much constrained by partners' physical separation or time differences (Dainton & Aylor, 2002). Partners can express their contentment or concerns about a relationship via Facebook at their own convenience and the partner can receive it whenever they are on Facebook.

Moreover, relationship awareness on Facebook is accessible and traceable for the perceivers, as users' Facebook activities are automatically logged and displayed. Individuals can easily track their partners' past or present Facebook behaviors, including those depicting relationship awareness. Each time some individual browses through his/her partner's Facebook page, cues of relationship awareness might become evident. In contrast, in a face-to-face context, partners' communication is more immediate and spontaneous, which makes behaviors or statements depicting relationship awareness relatively subtle and less traceable. Partners may downplay or ignore such cues. In addition, due to asynchronization of Facebook communication, individuals might have more time to ruminate on their partner's Facebook behavior (e.g., "Why did she post a selfie instead of the picture we took together at the zoo?"). Therefore, to some extent, relationship awareness is more prominent on Facebook and is less likely to be dismissed. Taken together, Facebook makes the communication of relationship awareness a salient process in partners' interactions and increases the probability that relationship awareness on Facebook will influence an individual's perception of his/her partner. This also supports the value of investigating the major manifestations of relationship awareness on Facebook.

Major Manifestations of Relationship Awareness on Facebook

Relationship awareness can manifest on Facebook through how an individual's self-presentations integrate his/her partner. I propose three manifestations of relationship awareness on Facebook: posting a dyadic photo as a profile picture, posting a partnered relationship status on the Facebook profile, and tagging the dating partner in status updates. Although there are few empirical studies on the specific manifestations of relationship awareness on Facebook, existing research supports my proposition. Particularly, Steers and colleagues (2016) utilized these manifestations to measure relationship awareness on Facebook, and found that all three were positively associated with the senders' relationship

authenticity and relationship quality. Below I will discuss how each Facebook act can represent relationship awareness.

Dyadic photo as a profile picture. I considered the act of involving partners in profile pictures as a reflection of individuals' relationship awareness. On Facebook, users voluntarily create a profile picture to represent the way that they prefer to be seen by existing and potential Facebook friends (Ellison, 2007; Hum et al., 2011). A profile picture occupies a prominent position on the Facebook profile and is an icon that represents the user during Facebook interactions, which makes it a vital component of a user's Facebook self-presentation (Hancock & Toma, 2009). A dyadic photo, a photo where both partners are present, symbolizes an individual's merged identity with his/her partner (Saslow et al., 2013; Seder & Oishi, 2012). Hence, the use of a dyadic photo as a profile picture can be regarded as a manifestation of an individual's relationship awareness.

Partnered relationship status on Facebook profile. Relationship awareness can also manifest as posting a partnered relationship status on Facebook profile. The Facebook profile is a section wherein users can disclose personal information, such as their whereabouts, birthdays, and educational background to Facebook friends (Christofides et al., 2009). This basic background information defines a user's image within his/her social circle. Hence, alongside the profile picture, a Facebook profile is another key component of users' construction of a Facebook identity (Zhao et al., 2008). In their Facebook profile, users can specify their relationship status as "single," "in a relationship," "married," and so forth. A partnered relationship status shows that the profile owner has a partner, and is thus unavailable to other romantic relationships. This voluntary act of listing a partnered relationship status has become a "tie sign" on Facebook, analogous to a couple's wedding ring in face-to-face context (Orosz, et al., 2015), and implies that the users have integrated

their relationship into their selves. As such, it can be considered as reflective of their relationship awareness.

Tagging partner in status updates. Tagging the partner in status updates can be another manifestation of relationship awareness on Facebook. Status updates are a primary means by which Facebook users can express themselves. Through status updates, users can share with friends their emotions, thoughts, feelings, and so forth. A tagging feature allows Facebook users to reference specific persons or events in Facebook updates, and when a person is tagged, he/she would be notified of it and can view the details of the Facebook update. In this way, tagging is often used as a tactic to draw the attention of the tagged person (Taylor, 2015). Between romantic partners, a tag links one partner to the other partner's Facebook post. Researchers have suggested that tagging is a virtual "tie sign" (Tong & Westerman, 2016) that can be used to maintain relationships (Farci, Rossi, Boccia, & Giglietto, 2016). For instance, tagging friends is positively associated with an individual's sense of connection with and supportiveness of the tagged person (Oeldorf & Hirsch, 2015). Although a status update tagging the partner may or may not refer to relationship issues per se, the behavior itself demonstrates attentional focus on the relationship. Therefore, tagging the partner in status updates indicates relationship awareness.

Facebook Cues of Relationship Awareness Enhance Partners' Relationship Satisfaction

Since being relationship aware is an important relationship enhancement tactic and positively related to partner's relationship satisfaction, relationship awareness cues on Facebook may also serve as "pro-relationship" acts that facilitate relationship maintenance and improve partners' satisfaction. Tong and Walther (2011) has established that social presence—the feeling of "being with another person"—and tie signs are effective relationship maintenance behaviors on SNSs. Involving the partner in one's Facebook relationship awareness cues increases each partner's social presence, which is found to be positively

correlated with relationship satisfaction (Tong & Westerman, 2016). Facebook relationship awareness cues are also tie signs (Donath & boyd, 2004) that strengthen one's co-presence with the partner on Facebook as well as improve their relationship well-being (Farci et al., 2016).

Relationship awareness cues, as pieces of information disclosed by an individual, might enhance the partner's liking as the effect of a typical self-disclosure exchanged between partners. It has long been acknowledged that self-disclosure increases communication partner's understanding about each other and promotes each other's liking (Collins & Miller, 1994; Greene et al, 2006). Self-disclosure online, similar to their offline counterparts, reinforces communication partners' intimacy (Park, Jin, & Jin, 2011; Jiang, Bazarove, & Hancock, 2011). Particularly, an individual tends to perceive that the information sender trusts them and values the relationship, and thus feels close towards the information sender (Jiang et al., 2011; Kashian, Jang, Shin, Dai, & Walther, 2017).

Beyond the above, specific features engrained in the Facebook communication may reinforce the positive effect of relationship awareness on the perceiving partner. Particularly, relationship awareness cues on Facebook are made public or semi-public, meaning that updates of relationship-related information are known to one's social circle. Past research has indicated that revealing relationship information on Facebook is perceived by one's social circle as an indication of a satisfying relationship (Emery, Muise, Alpert, & Le, 2015). This may subsequently help the couple to gain more social approval and support (Etcheverry, Le, & Hoffman, 2013). Additionally, public exposure of romantic relationship to one's social circle also increases the chance of contact between one's romantic partner and friends, which is critical for healthy relationship development as well (Sprecher, 2011). Moreover, the fact that partners can easily trace partners' present or past expressions of relationship awareness

on Facebook, which may strengthen one's overall impression of the partner's pro-relationship acts, and further increase one's positive relationship experience.

Many relational effects observed in offline context have been replicated on Facebook (Rus & Tiemensma, 2017). It has been noted that Facebook is another context for various relationship behaviors to act out. Partner's relational activities, such as initiating new relationships, breaking up with partners, or stalking behaviors can be done in this digitized environment (e.g., Elphinston & Noller, 2011; Clayton et al. 2013; Smith & Duggan, 2013). Given the positive effect of relationship awareness in partners' offline interaction, relationship awareness cues on Facebook might also link to partners' relationship satisfaction. Existing research has provided preliminary evidence for this proposition. In a study examining how similarity between partners' Facebook profiles may influence their relationship satisfaction, Papp and colleagues found that the presence of a dyadic photo on male partner's profiles and female partners' posting of partnered relationship status were positively related to their partner's relationship satisfaction (Papp, Danielewicz, & Cayemberg, 2013). Another qualitative research also demonstrated that individuals positively view their partner's posting of a dyadic photo as a profile picture and display of a partnered relationship status on Facebook (Fox et al., 2013). Therefore, this thesis hypothesizes that relationship awareness cues on Facebook will increase partners' relationship satisfaction.

Relationship Awareness on Facebook and Perceived Partner Commitment

I propose that the positive effect of Facebook cues of relationship awareness on partners' satisfaction may be attributed to perceived partner commitment. Perceived partner commitment describes an individual's perception of the romantic partner's propensity to stay in the relationship and willingness to be with him/her (Arriaga & Agnew, 2001). Concerns about a dating partner's commitment are the most common source of suspicion (Holmes & Rempel, 1989); therefore, it is necessary for them to search for a sense of conviction that they

are with a dependable and caring partner. Those in a romantic relationship typically tie “the satisfaction of their hopes, goals, and wishes to the good will of their partner” (Murray, 1999, p. 23). Therefore, perceived partner commitment is imperative for individuals’ relationship satisfaction.

Indeed, perceived partner commitment is positively associated with one’s relationship satisfaction. If an individual perceives his or her partner as committed to the relationship, the former tends to experience less uncertainty and feels happier about the relationship (Adams & Jones, 1997). For example, perceiving one’s partner as committed increases one’s own certainty about a positive future for the relationship (Tan & Agnew, 2016). This perception also profoundly influences how rewarding a relationship can be (Kelley, 1979), relationship length (Bui, Peplau, & Hill, 1996; Drigotas & Rusbult, 1992), individuals’ own relationship satisfaction (e.g., Arriaga et al., 2006; Holmes & Rempel, 1989; Joel, Gordon, Impett, MacDonald, & Keltner, 2013), as well as that of their partner (Adams & Jones, 1997; Hendrick et al., 1988).

The conceptualization of perceived partner commitment as the mediating process is based on two theoretical grounds. First, the model of relational information processing suggests that communication partners are motivated to understand their relationship and derive meaning from their interaction to make sense of the relationship status. They glean relationship-related cues from their interaction, and then extract meaning out of these cues based on their existing knowledge (Knobloch & Solomon, 2005). Particularly, inferences about the partner’s commitment can be one of the most relevant outcomes when processing relational information. Given the significance of partner commitment in reducing relationship uncertainty and enhancing relationship well-being, partners are motivated to gather information about the partner’s commitment (Afifi, Dillow, & Morse, 2004; Arriaga et al.,

2006; Murray, 1999). Relationship awareness on Facebook might be one such clue to partner commitment, given its prominence and salience.

Furthermore, research focusing on computer-mediated communication revealed that people's intimacy towards an information sender increases due to their interpersonal attribution of the disclosed message (Jiang et al, 2011; Kashian, et al., 2017). An *interpersonal attribution* emphasizes attributing the reason behind a person's behaviors to the nature and dynamic of their relationship, rather than the person's dispositional characteristics (i.e., *dispositional attribution*) or external factors (i.e., *situational attribution*). Jiang et al. (2011) found that, in exchanging self-relevant information online, partners tended to assign the reason for a disclosed information to how the information sender regards the relationship—make an interpersonal attribution, which further increased the perceiver's intimacy and liking towards the information sender. Consistently, Orben and Dunbar (2017) found that individuals' perception of an online post explained how the content of the post affects the perceiver's relationship strength and relationship dynamic with the poster. Upon perceiving a partner's relationship awareness cues, one might make an interpersonal attribution that such information is posted because the partner is committed to the relationship, and subsequently experience relationship satisfaction.

Relationship Awareness on Facebook as Partner Commitment

There are several reasons to propose that relationship awareness on Facebook can be perceived as partner commitment. First, relationship awareness cues signal that the individual is distancing him or herself from potential alternatives, and is thus reducing potential threats to the relationship. An unclear relationship status, such as indicating that one is single despite being in a relationship, increases the chance of other potential partners approaching the individual, and may also increase the current partner's suspicions regarding that individual's commitment. On the contrary, clearly indicating a partnered relationship status informs the

individual's social network of his/her unavailability for potential romantic relationships, and thus may assuage the partner's suspicions. Research supports that more committed partners are more likely to voluntarily maintain their distance from other potential partners (Johnson & Rusbult, 1989). Furthermore, by involving their partner in Facebook posts, individuals convey a sense of exclusivity in the relationship (Fox et al., 2013). Hence, individuals might regard the partner as determined to preserve the relationship upon perceiving relationship awareness cues.

Second, research has shown that relationship awareness cues on Facebook are akin to making a promise about the partnered relationship in public. According to public commitment theory (Schlenker, Dlugolecki, & Doherty, 1994), promises made publicly are less likely to be broken, as people tend to prefer that others view them as consistent. Therefore, if an individual makes such a public promise, his/her partner might feel that the individual is unlikely to end the relationship in the short term. This, in turn, may make the partner perceive the individual as more committed. Moreover, by disclosing their relationship in public, individuals are, in effect, introducing the partner to their own social circle. Past research indicates that the involvement of one's partner in one's own social network indicates one's investment in the relationship (Jin & Oh, 2010). In a comparable way, individuals who more heavily involve their partner in their Facebook profile and posts make it costlier to end the relationship. Hence, relationship awareness cues on Facebook are likely to be regarded as commitment by the partner.

Third, demonstrating relationship awareness on Facebook is associated with individuals' own commitment. Steers et al. (2016) showed that partners' own use of relationship awareness cues on Facebook, such as mentioning the partner in status updates and using a dyadic profile photo, was positively associated with their own relationship commitment. In another study, individuals who used a dyadic profile photo also reported

being more committed to the relationship and stayed in the relationship for longer than did those who did not use a dyadic profile photo (Toma & Choi, 2015). Interviews with partners have suggested that relationship awareness cues such as posting a dyadic photo carry the meaning of being “Facebook official,” which symbolize the poster’s intention to maintain the romantic relationship with his/her partner (Fox, Osborn, & Warber, 2014). Given the above findings, it seems likely that the partner’s perceived partner commitment will increase if the individual demonstrates relationship awareness cues.

Overall, relationship awareness cues on Facebook may serve as an important medium by how a person forms an impression of his/her partner’s commitment, which, in turn, influence his/her own relationship satisfaction. I thus hypothesized that a person’s relationship awareness cues on Facebook increase the partner’s perceived partner commitment. In addition, given the positive effect of perceived partner commitment on relationship satisfaction, I expect that perceived partner commitment will mediate the effect of relationship awareness on relationship satisfaction.

Significance of the Present Thesis

The current thesis investigates, in the context of Facebook, the effect of one partner’s relationship awareness on the other partner’s relationship satisfaction, as well as one possible cognitive processes governing this effect. It is pertinent to study relationship awareness on Facebook because how relationship awareness is manifested on Facebook has been changed as compared with that in partners’ face-to-face interaction, and its effect is unknown. As discussed, how the previous research defines and differentiates diverse forms of relationship awareness in an offline context is no longer applicable on Facebook, as relationship awareness is always communicated on Facebook. In other words, Facebook makes it less distinguishable between the cognitive process and the communicative process of relationship awareness. Until now, we have had little understanding of how the effect of relationship

awareness manifests on SNSs, despite the importance of this understanding. Indeed, in recent years, couples' interactions have substantially shifted to online media such as Facebook, which has necessitated the extension of investigations of relationship awareness to the online context. This thesis helps extend the construct of relationship awareness by identifying specific forms of relationship awareness that are unique to Facebook and examining their associated relational effect.

This research focuses on cues of relationship awareness, which offers a new way to investigate relationship awareness. Relationship awareness is commonly investigated via interviews, wherein instances of this awareness are coded by experimenters, or via retrospective surveys based on participants' recent interactions with their partner (e.g., Acitelli, 1992; Cate et al., 1995; Tan et al., 2012; cf. Burnson, 2011). However, these research methods have limited the comprehension of relationship awareness to some extent, because they have not permitted inferences about causality of the association between relationship awareness and satisfaction. In contrast, the present work focuses on Facebook, where relationship awareness is traceable. This allows for the experimental manipulation of the presence or absence of relationship awareness, and further helps to delineate the perceivers' perception and relational experience toward these changes.

Furthermore, previous research tended to pay more attention to the effect of relationship awareness on satisfaction, with the cognitive mechanisms underlying this relationship less scrutinized. This might be because partners' communication is mostly spontaneous in face-to-face interactions and their perceptions of each other and their relational experience are likely concurrent, and thus hard to disentangle. In contrast, this research studied relationship awareness cues on Facebook, which allows for the discrimination of these processes because it provides the information receiver with more time to appraise their partner's relationship awareness cues. In sum, this method allows for the

examination of the partner's perception of relationship awareness and adds to the current knowledge of why relationship awareness influences partners' satisfaction.

Finally, studying relationship awareness in an online context like Facebook is also important for its potential influence on relationship in an offline context. Cognitions and behaviors on and off Facebook have been shown to interact (e.g., Elphinston & Noller, 2011; Gonzales & Hancock, 2011; Kanai, Bahrami, Roylance, & Rees, 2012; Steers et al., 2016). For example, partners' relationship status and attitudes may be reflected in their Facebook use (Duik, 2014; Toma & Choi, 2016), and how they present their relationship on Facebook appears to influence their actual closeness (Elphinston & Noller, 2011), their actual relationship experience (Muise, Christofides, & Desmarais, 2009), and how their social network perceives them as a couple (Saskow, Muise, & Impett, 2014). It is thus likely that the communication of relationship awareness on Facebook affects romantic partners' actual interaction routines and relationship well-being in the face-to-face setting.

Study Overview and Hypotheses

Based on the above literature review, I propose the following three research hypotheses: a) an individual's relationship awareness on Facebook enhances his/her partner's relationship satisfaction, b) an individual's relationship awareness on Facebook enhances his/her partner's perceived partner commitment, and c) perceived partner commitment explains the effect of relationship awareness on satisfaction. I tested these propositions in four studies. Study 1 was a field study that explored the association between relationship awareness and relationship satisfaction based on couples' actual status updates on Facebook. Studies 2–4 adopted an experimental approach to determine how relationship awareness on Facebook affects the partner's relationship satisfaction.

Study 1 used actual Facebook users' status updates to provide initial evidence for the association between individuals' relationship awareness and their partner's satisfaction. I

specifically examined the degree of “we-ness” in couples’ status updates, which was operationalized as the frequency of *first-person plural nouns* and *possessives*. It was predicted that the frequency of first-person plural nouns and possessives in individuals’ status updates would be positively associated with their partner’s relationship satisfaction. Similarly, their partners’ frequency of first-person plural nouns and possessives would also positively correlate with individuals’ own relationship satisfaction.

Study 2 experimentally tested how the presence of Facebook manifestations of relationship awareness influences partners’ relationship satisfaction. More specifically, participants’ relationship satisfaction and perceived partner commitment were compared between conditions where cues of their partner’s relationship awareness were present or absent. I hypothesized that the presence of such cues would increase participants’ relationship satisfaction and perceived partner commitment in comparison to the absence of such cues, regardless of the specific manifestation of the cue (i.e., a dyadic profile photo, partnered relationship status, and tagging the partner in status updates). Furthermore, I hypothesized that perceived partner commitment would mediate the association between partners’ relationship awareness and participants’ relationship satisfaction across the three cue manifestations.

In Study 3, I manipulated the mediator—perceived partner commitment—to further validate the causal effect of relationship awareness on relationship satisfaction through perceived partner commitment. I varied perceived partner commitment using mock Facebook pages, while keeping salient cues of the partner’s relationship awareness. If the influence of relationship awareness on partners’ relationship satisfaction was indeed explained by perceived partner commitment, then low level of perceived partner commitment should diminish the influence of relationship awareness, thereby resulting in lower relationship satisfaction. Hence, I hypothesized that participants who observed that their dating partner’s

Facebook page expressed a lower level of commitment would experience lower relationship satisfaction, even when relationship awareness cues were salient.

Given that Facebook content are editable, relationship awareness cues can be easily introduced or removed. Study 4 was designed to compare the effect of introducing and removing relationship awareness cues on participants' satisfaction and perceived partner commitment. Profile picture changes were used to operationalize the introduction and removal of relationship awareness cues. More specifically, replacing a personal photo with a dyadic photo represented the introduction of such cues, while vice versa represented their removal. I hypothesized that introducing a dyadic profile photo would improve the partner's relationship satisfaction, whereas removing one would reduce such satisfaction. Again, perceived partner commitment was regarded as the underlying factor explaining both effects.

Chapter I: Field Study

Facebook affords a platform for researchers to investigate couples' relationship awareness through natural language expression in status updates. Facebook is a daily social context where couples interact with each other, and thus it has the advantage of allowing researchers to probe couples' relationship awareness through unobtrusive information gathering. As mentioned earlier, the specific linguistic marker of relationship awareness is "we-ness"—the preference to use relational terms (Acitelli, 1993, 2002) including first-person plural nouns and possessives (i.e., "we" words). Therefore, those with high relationship awareness are likely to use "we" words in their status updates.

The present study utilized MyPersonality data (Stillwell & Kosinski, 2012), consisting of the frequencies of words in status updates of couple in a romantic relationship, to investigate how relationship awareness, as represented by "we-ness," is related to romantic partners' relationship satisfaction. Although "we" in status updates might not specifically refer to an individual and his/her romantic partner, these words nevertheless suggest an

individual's general tendency to pay attention to relationships (Acitelli, 2002). In the dataset, there was no direct measure of relationship satisfaction. As such, I will employ proxy variables to represent it. A proxy variable is a variable that demonstrates high correlation with a variable of interest (Clinton, 2004). Some classic examples include using gross domestic product per capita to indicate a nation's quality of life (e.g., Deaton, 2008) or the level of educational attainment to indicate cognitive ability (e.g., Berry, Gruys, & Sackett, 2006).

To index relationship satisfaction, two proxies were chosen among the present available variables: subjective well-being and the tendency to express positive emotion words. Research shows that domain-specific well-being can be highly relevant to one's overall subjective well-being (De Neve, Diener, Tay, Xuereb, 2013). Relationship well-being, as one fundamental component of one's social life, contributes to one's evaluation of life satisfaction (e.g., Demir, 2008; Dush & Amato, 2005; Guerrero et al., 2011; Love & Holder 2015). Positive emotion expression is also positively linked with a person's well-being in the relationship domain. It has been shown that positive emotion expressed on women's college yearbook is positively associated with their marriage satisfaction (Harker & Kelner, 2001), and partners with high romantic competence express more positive emotions (Joanne, Haley, & Vickie, 2017), and more positive emotional words is associated with better dyadic adjustment among cancer patients (Karen, Wright, & Robbins, 2017). Overall, both subjective well-being and positive emotion expression are highly positively correlated with relationship satisfaction and can be valid proxy variables to it.

Since I had the data of both members of a couple (the user and the user's partner), in this study, I hypothesized that one partner's "we-ness" in Facebook status updates would be positively correlated with the other partner's proxies of relationship satisfaction. That is, users' "we-ness" would be positively associated with their partner's subjective well-being

(*H1a*) and expression of emotion words (*H1b*). Similarly, the partner's "we-ness" would be positively associated with the user's subjective well-being (*H2a*) and expression of positive emotion words (*H2b*).

Study 1

Method

Materials. Participants' word frequencies in status updates and subjective well-being were obtained from the MyPersonality database, www.mypersonality.org (Stillwell & Kosinski, 2012). MyPersonality is a mobile application that allows Facebook users to take various psychometric tests, such as personality tests and measurements of subjective well-being, while also allowing researchers to collect Facebook users' psychological attributes and their Facebook usage parameters. Users must log in to the application to complete the tests. With users' permissions, the application also accesses and records Facebook information, such as their profile information, status updates, and friend list. Users' responses are archived and made available online to researchers. The database contains the information of over 10 million Facebook users worldwide, collected between 2007 and 2012. Each participant has a unique ID number that is not associated with their actual identity.

First, I downloaded the couple dataset (8165 users; women = 4156, men = 3985, 52 did not indicate their sex; $M_{age} = 26.38$ years, $SD = 9.77$), which contains data of a Facebook user and his/her partner, such as their number of friends, relationship status, and number of likes. Then using the unique IDs in the database, I downloaded these users' and their partners' demographic information, frequencies of various words in status updates, and subjective well-being scores. Word frequencies have been pre-processed using the Linguistic Inquiry Word Count program (LIWC; Pennebaker, Booth, & Francis, 2007). The LIWC decomposes individuals' language into distinct psychologically meaningful categories and outputs the percentage of use of each category. Finally, I merged the three datasets using the unique user

ID. However, because there were only 455 users (women = 255) and 450 users' partners (women = 277) reported their subjective well-being, subsequent analysis related to subjective well-being would only be performed on these groups of participants.

Data Analysis

In the analysis, I employed the frequency of “we” words divided by the frequency of “I” words, i.e., (we/I) to indicate “we-ness.” This transformation allowed for the examination of an individual’s tendency to use “we” words relative to their overall usage of “I” words. Following the same logic, ($positive/negative$) was used to determine individuals’ tendency to use positive emotion words relative to their use of negative emotion words.

I conducted two sets of correlation analyses: in one, I correlated Facebook users’ “we-ness” with their partners’ subjective well-being and tendency to use positive emotion words; while in the other, the users’ subjective well-being and tendency to use positive emotion words with their partners’ we-ness. As mentioned, the correlation between subjective well-being and “we-ness” could only be performed for those who reported such data (455 users and 450 users’ partners).

Results

Users’ “we-ness” was marginally significantly correlated with their partner’s subjective well-being, $r(321) = .10, p = .09$. *H1a* was partially supported. However, the partner’s “we-ness” was not significantly correlated with the users’ subjective well-being, $r(71) = .14, p = .24$; therefore, *H2a* was not supported. Conversely, users’ “we-ness” was positively correlated with their partners’ tendencies to express positive emotions in status updates, $r(906) = .07, p = .04$, and the partners’ “we-ness” was also significantly correlated with the users’ use of positive emotion words, $r(905) = .07, p = .04$, thus supporting both *H1b* and *H2b*. Correlations between variables and descriptive statistics are presented in Table 1.

Discussion

Study 1 examined how romantic partners' relationship awareness reflected in real-life language use on Facebook is related to each other's relationship satisfaction. Partners' "we-ness," represented by the relative tendency to use "we" words to "I" words, was positively correlated with each other's tendency to use positive emotion words. However, while the users' "we-ness" and their partner's subjective well-being presented a positively associated trend, the partners' "we-ness" was not significantly correlated with the users' subjective well-being. This non-significant effect may be related to the small sample size ($N = 71$) after the computation of "we-ness," as many users and their partner both have zero frequencies of "I" and "we" words, and thus cannot be included in the analysis. This reduced number of available participants restricts the power of the correlational analysis to obtain significant result. Since this study primarily targeted a non-directional effect between one partner's "we-ness" and the other partner's proxies of relationship satisfaction, the results generally support the research hypothesis that one partner's relationship awareness is positively correlated with the other partner's relationship satisfaction.

The choices of proxy variables pose some limitations for the present study. Specifically, the "we" words in status updates may not exclusively refer to romantic relationships or target the user's romantic partner; instead, these words only provide an approximation of how an individual pays attention to his/her romantic relationship. As this thesis aims to establish the causal link between relationship awareness and relationship satisfaction, it is important to study more specific manifestations of relationship awareness besides its linguistic marker. Additionally, although previous research has shown that individuals' expression of positive emotion words and subjective well-being highly correlate with relationship satisfaction, they are still distinct concepts. The former two variables are overall measures of individuals' satisfaction towards distinct aspects of life, while the latter is

more specific to satisfaction about a specific relationship. This limits this study to conclude that there is an association between partners' "we-ness" and their satisfaction about their romantic relationship. A more precise measure of couples' relationship satisfaction is needed.

Another limitation is related to the small effect size. Although they are in line with previous research that examined LIWC related results, such as in a study examining self-monitoring and people's Facebook language, the r ranges from .04 to .08 (He, Glas, Kosinski, Still, & Veldkamp, 2014), or in another study predicting life satisfaction using Facebook language, the r ranges from .11 to .15 (Collins, Sun, Kosinski, Stillwell, & Markuzon, 2015), I acknowledge that these effect sizes are indeed very small and need to be interpreted with caution. This may also imply a limitation of using LIWC data to perform correlation.

Overall, this study was an initial step towards exploring the effects of partners' relationship awareness on Facebook using naturalistic and unobtrusively collected partners' Facebook data. Despite its limitations, this research presents an alternative approach to experiments or self-reports, where researchers can study relationship awareness. Nevertheless, studies that employ an experimental approach allow for more control over the variables. Therefore, the subsequent studies employed experimental paradigms to elucidate how relationship awareness influences partners' relationship satisfaction.

Chapter II: Effects of Imagined Relationship Awareness on Facebook on Partners'

Relationship Satisfaction

The objective of Study 2 was to use an experiment to test the central research proposal that the presence of relationship awareness on Facebook increases relationship satisfaction through perceived partner commitment. Specifically, I implemented a research paradigm wherein participants imagined that their partner had posted information on Facebook with or without relationship awareness; then, they reported their relationship satisfaction. In daily life, a typical Facebook user regularly updates information about

themselves including switching between distinct profile pictures, updating self-relevant information in Facebook profile, or posting status updates. Therefore, participants imagining a situation wherein their partner updates or posts information on Facebook is analogous to a real-life situation. Moreover, users on Facebook also commonly make inferences and form impressions of others based on diverse Facebook information (Levordashka & Utz, 2016), making inferences about their partner's Facebook updates should be part of their ordinary daily experience.

The present study included asking participants to imagine a hypothetical scenario where their partner engages in certain behaviors on Facebook. This approach is common in the study of Facebook and relationships. Studies conducted in both online and offline settings provide support for this research paradigm and have repetitively used this paradigm to induce relationship related feelings such as infidelity and jealousy (e.g., Guadagno, Sagarin, 2010; Knobloch & Solomon, 2002; Muscanell, Guadagno, Rice, & Murphy, 2013). For example, in a study examining the influence of Facebook cheating on romantic partners' relationship experience, participants imagined accessing to their partner's Facebook page with diverse privacy restrictions (Muscanell, Guadagno, Rice, & Murphy, 2013). Given that it would be unethical to induce changes in a partner's relationship awareness cues within any actual interaction, imagining a hypothetical scenario was deemed appropriate for this study. Additionally, past research has also suggested imagining interaction within a romantic relationship is a key part of romantic life (Honeycutt & Cantrill, 2000), and partners' anticipation of responses are not far from their real-life reactions (Acitelli, 1988; Lemay & Melville, 2014). Hence, a study based on an imagination task should help to predict what romantic partners would do in real life.

Consequently, I hypothesized that, regardless of the manifestations of relationship awareness on Facebook, the presence of the partner's relationship awareness cues would

increase individuals' own relationship satisfaction (*H3*) and perceived partner commitment (*H4*). Furthermore, changes in perceived partner commitment would explain the effect of the presence of relationship awareness cues on relationship satisfaction (*H5*).

Study 2

Method

Participants. Participants ($N = 318$) were recruited from the Amazon Mechanical Turk (MTurk). MTurk is a web-based platform that allows researchers to distribute surveys and collect responses from the public (Levay, Freese, & Druckman, 2016). Participants who were in the US could participate in this study. Each participant was rewarded with 0.2 US dollars for completion of the study. Seventy-five incomplete and invalid entries were excluded. I also filtered out five participants who had reported having no prior dating experience and who were single at the point of data collection and seven participants who reported never using Facebook, leaving the data of 231 participants (women = 152, men = 79; $M_{age} = 36.10$ years, $SD = 12.18$). 79.7% ($N = 184$) of the participants were involved in a romantic relationship when the study was conducted. Most of them were in a geographically close relationship (77.7%) and were dating seriously (82.3%). Most participants reported that their partner and they were at a moderately to highly developed relationship stage (90.8%).

Procedure and measures. Participants took part in a web-based study titled "Facebook and romantic relationship" through MTurk. Upon giving their consent online, participants were presented with a paragraph summarizing the functions of the profile picture, profile information, and tagging on Facebook (see Appendix A for a detailed description).

Then, participants were asked to engage in an imagination task. They were randomly assigned to one of the Facebook manifestation conditions: *profile picture*, *relationship status*, or *tagging*, wherein they were asked to imagine that their partner had displayed a personal photo as a profile picture, had an empty Facebook profile, or had posted a status update about

themselves, respectively. Subsequently, participants reported their relationship satisfaction and perception of how committed their romantic partners were.

Then, participants were instructed to imagine that their partner had made some changes to their Facebook page. One group of participants was assigned to the *experimental condition*, and the other group to the *control condition*. In the *experimental condition*, the changes made on the Facebook page contained cues of relationship awareness. Specifically, participants imagined that their partner had uploaded a dyadic photo as a profile picture, indicated a partnered relationship status in his/her profile, or tagged the participant in a newly posted status update, depending on the manifestation condition. In contrast, in the *control condition*, cues of relationship awareness were absent: Participants imagined that the partner had uploaded another personal photo as his/her profile picture, indicated hometown information in his/her profile, or posted another status update about him/herself. Participants were also asked to write down what they imagined the changes made by the partner might be. In detail, they were asked to report the possible content of the new profile picture, status update, or to comment on their partner's newly updated profile information. This step was aimed at further engaging the participants in the imagination task. Then, participants again reported their perceived partner commitment and relationship satisfaction.

Once participants had completed these measures, they completed a survey of their demographic information and their relationship-related information, including their current relationship status and whether they had previously dated. The frequency of Facebook usage was also measured as a control variable.

Perceived partner commitment. The commitment subscale from the Investment Model Scale (Rusbult, Martz, & Agnew, 1998) was adapted to measure perceived partner commitment. All instances of "I" in the original scale were changed to "my dating partner" to ensure that the scale measured the participants' perception of his/her partner's commitment.

The commitment subscale contains seven items, such as “my dating partner wants our relationship to last for a long time” and “my partner would not feel very upset if our relationship were to end in the near future” (reversed coded) (Rusbult et al., 1998).

Participants rated each item on a 9-point Likert scale, ranging from 0 (*do not agree at all*) to 8 (*agree completely*), with higher scores indicating greater commitment to the relationship.

This scale demonstrated high reliability in this study ($\alpha = .95$) (see Appendix B).

Relationship satisfaction. Participants’ relationship satisfaction was measured using the well-established Relationship Assessment Scale (Hendrick, 1988). Participants answered seven questions on a 5-point Likert scale ranging from 1 (*low satisfaction*) to 5 (*high satisfaction*). Sample items included “how well does your partner meet your needs?” and “in general, how satisfied are you with your relationship?” (see Appendix C). The reliability of the scale reliability was high ($\alpha = .94$).

Frequency of Facebook usage. Participants reported how often they use Facebook on a “1” to “6” scale (see Appendix D). “1” represents that a person never uses Facebook and “6” represents that a person uses Facebook on daily bases.

Results

Effect of imagined Facebook activity on relationship satisfaction and perceived partner commitment. First, to index the change in participants’ relationship satisfaction before and after the manipulation, I subtracted participants’ relationship satisfaction when they imagined their partners’ initial Facebook content from that when they imagined their partners’ newly updated Facebook content, i.e., $M_{\text{change}} = M_{\text{new}} - M_{\text{initial}}$. If this number is positive, it suggests an increase in relationship satisfaction after the manipulation; in contrast, if the number is negative, it denotes a decrease in relationship satisfaction. The changes in perceived partner commitment were derived using the same formula.

A 2 (Relationship awareness: experimental vs. control) \times 3 (Facebook manifestation: profile picture vs. relationship status vs. tagging) analysis of covariance (ANCOVA) was conducted with changes in relationship satisfaction as the dependent variable and participants' sex and frequency of Facebook use as covariates. The results revealed a main effect of relationship awareness on changes in relationship satisfaction, $F(1,223) = 13.18, p < .001, \eta^2 = .06$ ($M_{\text{control}} = -.07, M_{\text{experimental}} = .18$). There was no main effect of the Facebook manifestation, $F(2, 223) = .99, p = .37, \eta^2 = .009$, or an interaction effect, $F(2,223) = .77, p = .46, \eta^2 = .007$ (Figure 1). In other words, regardless of the type of Facebook manifestation of relationship awareness, participants experienced a significant increase in relationship satisfaction when their partners posted cues of relationship awareness on Facebook. Therefore, *H3* was supported.

I found similar results for changes in perceived partner commitment: there was a significant main effect of relationship awareness, $F(1, 222) = 12.70, p < .001, \eta^2 = .05$ ($M_{\text{control}} = -.19, M_{\text{experimental}} = .32$), but no main effect of Facebook manifestation, $F(2, 222) = .39, p = .68, \eta^2 = .004$, or an interaction effect, $F(2, 222) = 1.59, p = .21, \eta^2 = .01$ (Figure 2). Hence, regardless of the type of Facebook manifestation of relationship awareness, participants also experienced increased perceived partner commitment when their partner posted relationship awareness cues on Facebook. Therefore, *H4* was also supported.

Mediation effect of perceived partner commitment. To test the mediation effect of perceived partner commitment, I performed a moderated mediation analysis using PROCESS (Hayes, 2012) with relationship awareness as the independent variable, Facebook manifestation as a moderator of the relationship between the independent variable and mediator, and relationship satisfaction as the dependent variable. The results showed a significant conditional mediation effect (Figure 3). Specifically, perceived partner commitment was a significant mediator of the effect of relationship awareness on relationship

satisfaction in the profile picture and relationship status conditions, $B = .17$, CI [.06, .34], and $B = .12$, CI [.02, .24], respectively, but not in the tagging condition, $B = .04$, CI [-.03, .14].

In other words, when participants' partners indicated their romantic status or used a dyadic profile picture, participants perceived their partner as more committed to the relationship, which, in turn, led participants to feel more satisfied with their relationship. However, these effects were not present when participants imagined their partner as tagging them in status updates. Therefore, *H5* was partially supported. Separate mediation analyses on each type of Facebook manifestation were also conducted. The results were consistent with those found in the above moderated mediation analysis. The path coefficients for each mediation model are presented in Table 2.

Discussion

Study 2 experimentally investigated the influence of Facebook manifestations of relationship awareness on romantic partners' relationship satisfaction. The results confirmed a positive effect of the presence of relationship awareness on Facebook. Regardless of the Facebook manifestation of relationship awareness, participants experienced an increased level of relationship satisfaction and perceived partner commitment when their partner demonstrated relationship awareness on Facebook. However, the moderated mediation analysis showed that diverse manifestations might elevate relationship satisfaction through diverse paths. Relationship awareness expressed through dyadic photos or the partnered relationship status significantly increased partners' perceived partner commitment and their relationship satisfaction. Conversely, when relationship awareness was expressed through tagging in status updates, perceived partner commitment did not significantly mediate the effect of relationship awareness on relationship satisfaction.

The differences in the mediating effects of perceived partner commitment across diverse Facebook manifestations of relationship awareness might be attributed to the meaning

associated with these manifestations. Profile pictures and the relationship status in the profile are both key components of users' Facebook identity (Wu, Chang, & Yuan, 2015; Zhao et al., 2010), and represent how one wishes to be perceived by one's Facebook friends. Hence, integrating the partner into Facebook via these two channels is more likely to be inferred by the partner as an individual displaying the intention to be publicly associated with the partner, and signifying a long-term orientation toward the relationship (Fox et al., 2013; Toma & Choi, 2012).

Conversely, although tagging the partner is indeed associated with commitment (Steers et al., 2016), it might not be as readily perceived so by the partner. Status updates are a primary platform for self-expression; the focus of the content is rarely on one's detailed interactions with a partner, but instead on information about the self, such as leisure activities (Zhang, 2010). Research showed that intimate information is often regarded as inappropriate to publish as public Facebook posts (Bazarova, 2012). As such, tagging a dating partner in these updates may be less associated with an individual's intention to continue the relationship. Rather, it is effectively a piece of personal information disclosed to the partner that keeps the partner updated with one's latest happenings. Hence, tagging the partner in status updates might lack the long-term orientation needed to engender a sense of commitment. In addition, tagging is often used to reference Facebook friends, which suggests that the meaning of tagging the partners in status updates can be ambiguous: it may be unclear to an individual's social network whether the tagged person is one's romantic partner or merely a friend. In contrast, a dyadic photo and the partnered relationship status are usually more specifically about the romantic partner, which might elicit a sense of exclusivity among perceivers and thus signal commitment to the partner.

It is possible that the content of the message associated with the tagging matters more for the perceiving partner. If the message content is not relevant to the status of the

relationship, but merely a personal information update, as the current study designed, partners might not perceive such cues as commitment. These messages with a tag may simply like the partners' daily mundane communication and another piece of self-disclosure, which help maintain a relationship (Jiang et al, 2011; Tong & Walther, 2011), but are rarely deemed an indicator of commitment. If the content mimics an offline relationship talking, such as "I really enjoyed the Sunday dinner with @ *partner name*" (i.e., tag), the perceiver may more readily associate the tagging message with the sending partner's commitment. Hence, how tagging affects commitment perception may be more related to the actual content of a status updates, rather than tagging per se. Future research is needed to test how the composition of a Facebook post affects the effect of tagging.

It is noteworthy that an alternative mediation model may exist. Specifically, relationship satisfaction might also hasten the increase in perceived partner commitment—that is, people asked to imagine a partner updating a dyadic photo might perceive their partner as more committed because they feel happy and satisfied. Indeed, a moderated mediation analysis treating relationship satisfaction as the mediator and perceived partner commitment as the dependent variable showed that relationship awareness can also influence perceived partner commitment through relationship satisfaction.¹ While the present study is based on the theoretical model where partners first cognitively appraise a relational information on Facebook, it would be interesting to test how one's own satisfaction level may be contingent to a relational information and subsequently bias his/her cognitive appraisal of the partner behavior. Nevertheless, to provide further experimental evidence for the role of perceived partner commitment as a mediator, I conducted another experiment wherein perceived partner commitment was manipulated (Study 3).

Chapter III: Manipulation of Perceived Partner Commitment on Facebook

This chapter details an experiment conducted to validate the causal relationship between relationship awareness, perceived partner commitment, and relationship satisfaction. More specifically, I manipulated the level of perceived partner commitment using unfaithful Facebook acts presented on a mock Facebook page, while keeping relationship awareness cues salient. These cues were made salient by displaying a dyadic photo as the profile picture and a partnered relationship status on the mock Facebook profile. If participants' relationship satisfaction were substantially reduced when perceived partner commitment was manipulated to be low, even when the partner's cues of relationship awareness were salient, this would indicate that perceived partner commitment explains the effect of relationship awareness on relationship satisfaction. Hence, I predicted that even in the presence of cues of the partner's relationship awareness, participants would experience lower relationship satisfaction when they were presented with unfaithful acts than when presented with faithful acts (*H6*).

Study 3: Pretest

To manipulate perceived partner commitment, I first conducted a pretest to identify Facebook behaviors considered unfaithful (i.e., indicating a partner's low commitment to the other). These unfaithful Facebook acts were then used in the main study to create mock pages indicating low perceived partner commitment. Since the primary purpose of the pretest was to find out the typical unfaithful acts on Facebook associated with perception of low commitment, I aim to gather sufficient Facebook acts to induce low perceived partner commitment rather than generating an exhaustive list of unfaithful Facebook behaviors.

Method

Participants. Twenty participants (women = 16, men = 4; $M_{\text{age}} = 36.05$ years, $SD = 13.31$) were recruited from MTurk. All participants had to be Facebook users to be eligible

for this study. Most (60%) participants reported using Facebook daily, and the remainder used Facebook at least once a month.

Procedure and measures. I first interviewed four lay people (two men and two women) to freely generate up to five typical unfaithful Facebook acts that they thought signified a partner's low commitment to relationship. The four informants were in a romantic relationship when the interview was conducted. They and their partners regularly used Facebook. After consolidating all informants' answers, seven behaviors were generated. These behaviors included (1) having mostly opposite-sex friends on one's friend list, (2) only talking about one's self in all status updates, (3) adding a new opposite-sex friend whom one does not recognize, (4) reposting other good-looking girls'/boys' posts, (5) adding an ex-girl/boyfriend as a friend, (6) communicating a lot with opposite-sex friends, and (7) replying to other friends' comments but not the partner's. The generated list of behaviors has received prior empirical support as being associated with low commitment. Drouin, Miller, and Dibble's study (2014) showed a link between adding a lot of friends of Facebook and low relationship commitment. Cravens, Leckie, and Whiting (2013) also showed that friending ex-partner and commenting on attractive user's picture are regarded as Facebook-related infidelity behaviors. Therefore, I considered the generated behaviors as sufficient and representative enough.

Then, I asked MTurk participants to validate the generated behaviors. Specifically, an online survey about Facebook and romantic relationships was placed on the MTurk, and participants enrolled themselves in the study. They were first instructed to imagine that they were in a dating relationship, and then indicate to what extent each of the seven behaviors reflected their partner's level of commitment to the relationship. A 5-point Likert scale was employed, with answer choices ranging from 0 (*none*) to 4 (*a lot*); a higher score represented

more perceived partner commitment. Participants also reported their frequency of Facebook usage and demographic information.

Results

All participants' responses were analyzed using a one-sample *t*-test; the means of participants' rating on each behavioral measure was compared against the mid-point of the Likert scale for perceived partner commitment (i.e., 2), which represented a relatively neutral attitude. If the mean rating of a given Facebook behavior was significantly lower than 2, it meant that participants regarded such behavior as an indicator of their partner's low commitment. The results showed that only the behavior "dating partner only talks about him/herself in all status updates" ($M = 1.55$) was not significantly different from 2, $t(1,19) = 1.83$, $p = .08$. The other six behaviors were all significantly below the mid-point ($p < .05$). This pretest thus established what behaviors could elicit people's suspicion about their dating partners' commitment (i.e., behaviors no. 1, 3, 4, 5, 6, and 7). The main study would use these behaviors to manipulate perceived partner commitment.

Study 3: Main Study

Method

Participants. Eighty-one participants were recruited via the research participation pool at Nanyang Technological University. They were rewarded with one research credit after completing the study. I excluded participants who either did not notice that the hypothetical volunteer had displayed a dyadic photo as his/her profile picture or had specified a relationship status. This reduced the sample to 55 participants (women = 42, men = 13; $M_{\text{age}} = 21.17$ years, $SD = 1.70$), including 27 in the control condition and 28 in the experimental condition. Two-thirds of the participants (69.1%, $N = 38$) were single when the study was conducted, and the rest were involved in a romantic relationship.

Mock Facebook page. To manipulate participants' perceived partner commitment, two types of mock Facebook page were created: one indicating low perceived partner commitment (*experimental condition*) and the other indicating neutral perceived partner commitment (*control condition*). The unfaithful acts identified in the pretest were utilized to create these diverse types of Facebook pages. Two unfaithful acts (No. 3 and 5) identified in the pretest could not be feasibly incorporated into the design of the Facebook page, and hence were excluded; therefore, the four remaining behaviors (No. 1, 4, 6, and 7) were included. In detail, the Facebook page in the experimental condition showed that the hypothetical volunteer interacted frequently with opposite-sex friends, ignored his/her partner's comments, reposted another opposite-sex friend's post, and had mostly opposite-sex friends in the visible friend list. In contrast, in the control condition, the Facebook page did not present these unfaithful acts. To create an equivalent Facebook page, the hypothetical volunteer in the control condition was shown to interact frequently with same-sex friends, had mostly same-sex friends in the friends list, and did not specifically ignore his/her partner's comment, but rather did not reply to either their partner or other friends' comments either.

For both types of Facebook pages, the volunteer's relationship awareness was made salient via a dyadic profile picture and a partnered relationship status. To create a dyadic profile picture, I drew typical female and male avatars and placed them side-by-side as a dyadic photo using a mobile application FaceQ. Avatars are commonly used as virtual profile photos, and using avatars helped control for the attractiveness of the hypothetical volunteer. For example, using a fictional avatar to represent a hypothetical person has been used to study how Facebook posts influence relationship development and intimacy (Orben & Dunbar, 2017).

The rest of the Facebook page, including the content of status updates, friends' profile pictures, and basic personal information such as date of birth and university attended were

equivalent across conditions. In total, four mock Facebook pages were created, two (i.e., unfaithful and faithful pages) for a male hypothetical volunteer and two for a female hypothetical volunteer.

Procedure and measures. Participants were informed that they were participating in a study titled “Facebook and self-expression” to prevent them from identifying the real research purpose. Upon their consent, participants were briefed regarding the experimental procedure: they would first browse the Facebook page of a volunteer who was willing to disclose his/her Facebook for this study and then answer a short questionnaire related to the content of the Facebook page. After participants had acknowledged that they understood the procedure, the experimenter used Qualtrics (an online survey portal, www.qualtrics.com) to present some background information about the volunteer including the information that the volunteer (Jason/Maria) is currently involved in a romantic relationship with (Maria/Jason). Subsequently, participants logged in to the volunteer’s Facebook using account information provided by the experimenter. The Facebook page was a static web page (written using the programming language PHP) that mimicked a real Facebook user’s timeline page, namely the Facebook page that displays a user’s Facebook activities, which can be accessed by their Facebook friends. Participants were asked to take their time in browsing through the volunteer’s timeline page, but not to click on any links on the page for privacy reasons. This was to prevent them from recognizing that the Facebook page was not genuine.

Whether a female or male volunteer’s information and Facebook page was shown depended on the participant’s sex, with female participants viewing the male volunteer’s (Jason’s) page, and male participants viewing the female volunteer’s (Maria’s) page. This sex matching was to help participants adopt the volunteer’s partner’s perspective when estimating the volunteer’s commitment and their own relationship satisfaction.

Participants were randomly assigned to either the experimental condition (low perceived partner commitment) or control condition (neutral perceived partner commitment). After viewing the volunteer's Facebook page, participants proceeded to the online survey, which appeared to address how the volunteer used Facebook for self-expression, consistent with the deception used in the study. Two target questions were embedded in the online survey: one assessed participants' perception of the volunteer's commitment to the relationship and the other assessed perceived relationship satisfaction, if the participant were the volunteer's partner. To determine whether relationship awareness was successfully induced, participants were also asked if they were aware that the volunteer had indicated a partnered relationship status on Facebook and had used a dyadic photo as his/her profile picture. Then, participants reported their demographic information and were debriefed concerning the true purpose of the experiment.

Perceived partner commitment. Participants' perception of the hypothetical volunteer's relationship commitment was measured using a single question, "How committed do you think Jason/Maria is to the relationship with Maria/Jason?" A 9-point Likert scale was used, from 1 (*not committed at all*) to 9 (*very committed*).

Relationship satisfaction. Participants' relationship satisfaction was also measured using a single question, "If you were Maria/Jason's partner, how satisfied would you be with the relationship with Maria/Jason." Participants evaluated satisfaction on a 5-point Likert scale, ranging from 1 (*low satisfaction*) to 5 (*high satisfaction*).

Single questions were used to probe both perceived partner commitment and relationship satisfaction because they demonstrated high face validity, and comparable items were validated in Arriaga et al. (2006). They were also consistent with the other single-item questions included in the survey, which reduced the possibility of participants becoming suspicious of the stated research purpose.

Results

An independent samples *t*-test determined that participants reported a lower level of perceived partner commitment in the experimental condition ($M = 3.29$) than in the control condition ($M = 4.11$), $t(53) = 2.31$, $p = .02$, Cohen's $d = 0.62$. This shows that the volunteer with a Facebook page containing unfaithful acts was indeed perceived as less committed to the relationship than was the volunteer whose Facebook page did not contain such acts. The low perceived partner commitment was successfully induced.

An ANCOVA was then conducted with relationship satisfaction as the dependent variable, experimental condition as the independent variable, and sex as a covariate. A significant main effect of experimental condition was detected, $F(1,52) = 6.15$, $p = .02$, $\eta^2 = .11$; participants' relationship satisfaction in the experimental condition was significantly lower than that in the control condition. Furthermore, no significant effect of sex was shown, $F(1,52) = 1.89$, $p = .18$, $\eta^2 = .04$. Therefore, $H6$ was supported.

Discussion

Study 3 provided an experimental evidence of the effect of perceived partner commitment on relationship satisfaction, while controlling for the level of relationship awareness. Through manipulating perceived partner commitment on Facebook, I found that even when cues of relationship awareness were salient on Facebook, participants' perception of commitment dictated their experience of relationship satisfaction. This finding complements the findings obtained in the previous study and reveals that Facebook manifestations of relationship awareness can communicate commitment between partners and enhance the perceivers' relationship satisfaction.

The present study was limited, however, with respect to its method of perspective taking. To imagine a romantic relationship involving a hypothetical person (i.e., Jason or Maria), especially without a clear sense of the actual appearance of the person, might have

limited the effects observed. Further, to prevent participants from recognizing the research purpose, they were only asked to take the perspective of the volunteer's partner after they had browsed the volunteer's Facebook page as a third party. This might have reduced their engagement in perspective taking, and subsequently decreased the relationship impact of the unfaithful acts. Nevertheless, results based on perspective taking are generally regarded as compatible with people's real-life responses in most circumstances (Davis, Conklin, Smith, & Luce, 1996). Additionally, given that it is unethical to manipulate partners' actual behavior to purposely show relationship commitment or reduce participants' actual relationship satisfaction, using the method of perspective taking was a pragmatic choice.

This research manipulated perceived partner commitment through displays of unfaithful acts on Facebook. The differential number of displays of pro-relationship and unfaithful Facebook acts may confound the current research finding. The lower relationship satisfaction in the unfaithful condition may be attributed to the more displays of unfaithful acts (4 displays of unfaithful acts) than that in the faithful condition (2 displays of relationship awareness cues). However, research shows that potential losses often outweigh potential gains (Ito, Larsen, Smith, & Cacioppo, 1998; Kahneman & Tversky, 1984), and individuals tend to pay more attention to negative information in the context of impression formation (Skowronski & Carlston, 1989; Taylor, 1991). Ballantine, Lin, and Veer (2015) found that negative comments negatively drive people's evaluation even on a positive Facebook status. Here, when judging a partner's commitment, individuals may be more sensitive to, and rely more on, aversive information from their partner. It is possible that a single act signaling unfaithfulness would be strong enough to override the positive effect of relationship awareness cues. It requires future empirical studies to test whether the current effects could replicate when the magnitude of relationship awareness and unfaithfulness displays vary.

Finally, I asked participants to pretend that an opposite-sex volunteer was their partner assumed the participants were only interested in heterosexual relationship. Homosexual participants' attitudes towards relationship awareness cues on Facebook may be diverse due to social constrains, which requires further examination.

Chapter IV: Changes in Relationship Awareness via Profile Pictures

Studies 2 and 3 together demonstrated that the presence of relationship awareness cues on Facebook can increase the partner's perceived partner commitment, and consequently, his/her relationship satisfaction. However, in couples' daily interactions, relationship awareness cues may fluctuate. For example, cues can be introduced and removed by a partner. When a person does something special for his/her partner, such as sending flowers on his/her birthday, a relationship awareness cue is introduced. Conversely, if the "sending" partner typically sends gifts on a birthday, but fails to do so this year, a relationship awareness cue is removed. As Facebook content are editable, relationship awareness cues on Facebook can be effortlessly introduced and removed. Moreover, Facebook is a platform for self-expression, this renders information about a relationship be quickly replaced with information about oneself. This might have implications for a romantic partner's relationship satisfaction, as they gauge the partner's relationship commitment through these Facebook relationship awareness cues. Therefore, this chapter investigates how the introduction and removal of such cues influences the partner's perceived partner commitment and relationship satisfaction, and whether perceived partner commitment mediates the effect on the partner's satisfaction.

Study 4 operationalized the introduction and removal of relationship awareness cues as shifting between personal and dyadic profile photos. Changing from a dyadic to a personal photo represents the removal of a relationship awareness cue, whereas the opposite represents the introduction of a cue. The profile picture, but not relationship status, was chosen as the

sole experimental stimulus for manipulating cue introduction/removal for two primary reasons. First, changing one's profile picture is a prevalent behavior on Facebook (Wolford, 2011). A typical Facebook user has over 20 profile pictures in their photo album, suggesting frequent updates (Hum et al., 2011). However, people rarely change their relationship status. Second, removing a partnered relationship status or shifting back to a "single" status carries a rather explicit meaning about one's relationship progress—that a person has decided to hide the relationship for some reason or the relationship has ended (LeFebvre, Blackburn, & Brody, 2014). In contrast, the meaning of changing the profile picture and its potential impact on partners is less clear. The change may positively influence a perceiving partner's relationship experience, as the change reveals new personal information to the partner and increases his/her understanding of his/her partner (Kashian, Jang, Shin, Dai, & Walther, 2017). Conversely, a photo change may not heavily influence a partner's relationship experience, as change is a normative Facebook behavior that may not be taken seriously. Finally, the change may lead to negative consequences, as frequently changing a profile picture could be perceived as narcissistic (Wickel, 2015) or the partner's lack of consideration for the relationship. These deemed the examination of changing profile picture necessary and practically important as partners might ignore the potential positive or negative relational consequences associated with a common Facebook behavior.

Like Study 2, the present study included asking participants to imagine a hypothetical scenario where their partner introduces or removes a dyadic profile photo on Facebook. Nevertheless, a potential confound is present related to the downstream effects of the updated photo. As mentioned, a relationship awareness cue itself (i.e., a dyadic photo) is regarded positively by romantic partners (Papp et al., 2012); therefore, it is unclear if any increase in relationship satisfaction would be caused by the act of introducing a relationship awareness cue or by the mere presence of a relationship awareness cue. To disassociate the target effect

of introducing a relationship awareness cue from the mere presence of the relationship awareness cue, we included a control group where participants imagined that the partner changed the profile picture from one dyadic photo to another dyadic photo. In a similar vein, as personal information (i.e., a personal photo) may have negative effects on romantic relationships (Halpern, Katz, & Carril, 2017; Ridgway & Clayton, 2016; Wickel, 2015), we also included a second control group in the cue removal condition where participants imagined that the partner changed the profile picture from one personal photo to another personal photo.

The hypotheses for this study were as follows. Participants who imagined that their partner had introduced a dyadic profile photo would experience higher relationship satisfaction (*H7a*) and perceived partner commitment (*H7b*) than would those who imagined that their partner had maintained a dyadic photo. Conversely, participants who imagined that their partner had replaced a dyadic profile photo with a personal photo would experience lower relationship satisfaction (*H8a*) and perceived partner commitment (*H8b*) than would those who imagined that their partner had maintained a personal photo. Finally, perceived partner commitment was hypothesized to explain both the increase and decrease in relationship satisfaction resulting from the introduction and removal, respectively, of relationship awareness cues (*H9a* and *H9b*).

Study 4

Method

Participants. One hundred and sixty-nine students from Nanyang Technological University participated in this study. Participants received one course credit upon completion of the study. All participants were either involved in a romantic relationship or had dated previously. After removing one participant who had reported never using Facebook and five participants who did not follow experimental instructions, 163 participants' data (women =

118, men = 45; $M_{\text{age}} = 21.47$ years, $SD = 1.70$) were included in the study. More than half of the participants (61.34%, $N = 100$) were involved in a romantic relationship when the study was conducted. They were mostly in the geographically close relationship (93%). Most participants reported having a moderate to highly developed relationship with their partner (81%) and were dating seriously (83%).

Procedure and measures. Participants in the experimental groups were randomly assigned to either the cue introduction condition or the cue removal condition. Specifically, in the cue introduction condition, participants first imagined that their partner was using a personal photo as profile picture since the beginning of their romantic relationship. Next, participants completed measures assessing perceived partner commitment and personal relationship satisfaction. After that, participants were asked to imagine that their partner had just changed the profile picture from the personal photo to a dyadic photo. Participants were asked to write down how the dyadic photo would look, which was implemented to further involve participants in the imagination task. Participants then provided a second assessment of perceived partner commitment and relationship satisfaction. In the cue removal condition, the same procedure for the cue introduction condition was followed except that participants first imagined that their partner was using a dyadic photo as profile picture and then imagined that the partner changed the profile picture to a solo photo.

Participants in the control groups imagined that their partner had updated the profile picture from a dyadic photo to another dyadic photo in the cue introduction condition and from a personal photo to another personal photo in the cue removal condition. Following the imagination task, all participants were asked to complete a brief survey on their current relationship status, frequency of Facebook use, and demographic information, and were then debriefed.

Perceived partner commitment. Perceived partner commitment was measured using the commitment scale used in Study 2. All items were rated on a 5-point Likert scale ranging from 1 (*do not agree at all*) to 5 (*agree completely*). This scale had high reliability in this study ($\alpha = .93$).

Relationship satisfaction. Participants' own relationship satisfaction was measured using the Relationship Assessment Scale (Hendrick, 1988), as in Study 2. This scale also had high reliability in Study 4 ($\alpha = .91$).

Frequency of Facebook use. This measure was the same as that was used in Study 2.

Results

To test the effect of the manipulation in the second imagination phase, I used the same formula as in Study 2 to quantify the changes in participants' relationship satisfaction and perceived partner commitment across the two phases of imagination.

A 2 (Condition: experimental vs. control) \times 2 (Cue change: introduce vs. remove) ANCOVA was conducted, with the change in relationship satisfaction as the dependent variable and participants' sex and frequency of Facebook use as covariates. A significant main effect of cue change was detected, $F(1, 157) = 4.56, p = .03, \eta^2 = .03$ ($M_{\text{introduce}} = .07, M_{\text{remove}} = -.10$), but no main effect of condition, $F(1,157) = .21, p = .65, \eta^2 = .001$ ($M_{\text{control}} = .004; M_{\text{experimental}} = -.04$), indicating that changes in relationship satisfaction was associated with whether relationship awareness cue was introduced or removed rather than the type of the updated profile picture.

More importantly, there was a significant interaction effect between cue change and condition, $F(1,157) = 7.89, p = .006, \eta^2 = .05$ (Figure 4). Simple effects analysis showed that imagining a partner's profile picture influenced participants' relationship satisfaction in the experimental conditions, $F(1,157) = 13.12, p < .001, \eta^2 = .08$, but not in the control conditions, $F(1,157) < 1$. Specifically, partners' introduction of a dyadic photo significantly

increased relationship satisfaction, $M = .20$, 95% CI [.05, .35], while their removal of it significantly decreased relationship satisfaction, $M = -.19$, 95% CI [-.35, -.04]. These results support hypotheses *H7a* and *H8a*, and show that both the introduction and removal of cues of relationship awareness affected relationship satisfaction (Figure 5).

Next, a similar 2 (Condition: experimental vs. control) \times 2 (Cue change: introduce vs. remove) ANOVA was conducted, with perceived partner commitment as the dependent variable. A significant main effect of cue change was found, $F(1, 157) = 15.27$, $p < .001$, $\eta^2 = .09$ ($M_{\text{introduce}} = -.001$, $M_{\text{remove}} = -.35$); however, there was no main effect of condition, $F(1, 157) = 2.50$, $p = .12$, $\eta^2 = .02$ ($M_{\text{control}} = -.10$, $M_{\text{experimental}} = -.25$). This shows that the act of updating a personal or dyadic photo alone does significantly influence participants' perceived partner commitment. There was also a significant interaction between relationship awareness and condition, $F(1, 157) = 10.77$, $p = .001$, $\eta^2 = .06$ (Figure 4). Simple effects analysis revealed that imagining changes in the partner's profile picture influenced participants' perceived partner commitment in the experimental conditions, $F(1, 157) = 27.74$, $p < .001$, $\eta^2 = .15$, but not in the control conditions, $F(1, 157) < 1$. Partners' introduction of a dyadic photo did not significantly increase perceived partner commitment, $M = .07$, 95% CI [-.09, .24], although the direction of the effect was consistent with the hypothesis. Therefore, *H7b* was not supported. Conversely, partners' removal of a dyadic photo significantly decreased perceived partner commitment, $M = -.56$, 95% CI [-.74, -.39], supporting *H8b* (Figure 5).

A moderated mediation analysis was performed to test the effect of perceived partner commitment. A conditional mediation effect was detected, whereby perceived partner commitment was a significant mediator of the effect of cue change on relationship satisfaction for participants in the experimental conditions, $B = .30$, 95% CI [.14, .52], but not for those in the control conditions, $B = .03$, 95% CI [-.07, .13]. Then, after splitting the data

according to the introduction and removal of relationship awareness, I separately checked the mediation effect of perceived partner commitment in these two conditions. The relationships among variables were in the hypothesized directions. When partners introduced relationship awareness cues, participants perceived their partner to be more committed to their relationship, and the participants' relationship satisfaction increased. However, the mediation effect did not reach statistical significance, $B = .11$, 95% CI $[-.01, .30]$ (Table 2). Therefore, *H9a* was not supported. In contrast, participants perceived less commitment from the partner when the partner removed relationship awareness cues, which, in turn, led participants' relationship satisfaction to decrease, $B = -.19$, 95% CI $[-.44, -.06]$ (Table 2). This supported *H9b*.

Discussion

In Study 4, I examined how an individual's introduction or removal of relationship awareness cues on Facebook (as reflected in a profile picture) influenced his/her partner's relationship satisfaction and perceived partner commitment. Notably, whereas the introduction of relationship awareness cues (i.e., replacing a personal profile photo with a dyadic profile photo) increased relationship satisfaction, the removal of those cues (i.e., replacing a dyadic profile photo with a personal profile photo) decreased satisfaction. Furthermore, when cues of relationship awareness were removed from the partner's Facebook page, there was a decline in the partner's perceived commitment. Conversely, when cues of relationship awareness were newly introduced, there was an increase in perceived partner commitment, although the effect did not reach statistical significance.

The student sample used in the present study may explain why perceived partner commitment is a significant mediator in the cue removal condition, but not in the cue introduction condition. New media has characterized the lives of young people in the 21st century (Brandtzæg, 2012); as such, for this group, using dyadic profile photos can be a

common practice among those involved in romantic relationships (e.g., Fox et al., 2014; Zhao et al., 2012). Particularly, this study employed only university students, all of whom were approximately 21-years-old. There is a tendency that they consider introducing a dyadic photo as normative behavior rather than as a behavior that implies commitment (e.g., Van Ouytsel, Van Gool, Walrave, Ponnet, & Peeters, 2016). Moreover, they might regard replacing relationship awareness cues with self-relevant information as inappropriate, thus suspecting the partner's commitment to the relationship. Therefore, we see a sharp decrease in perceived partner commitment when a dyadic photo was removed, but a relatively slight increase in perceived partner commitment when a dyadic photo was introduced. On the contrary, if an individual does not deem posting relationship awareness cues as an obligation, they might be quite indifferent about removing such cues, but see introducing them as much rewarding and an indicator of partner's commitment.

Overall, this study corroborated the findings of Studies 2 and 3; perception of commitment is one key dimension that underlying the changes in a person's relationship satisfaction when partners change profile pictures. Past qualitative studies have shown that romantic partners changing their profile pictures on Facebook implicitly communicates information about their relationship. For instance, participants in Zhao et al.'s study reported, "Yeah, we were both always in our profile pictures... he took me off of his... we stopped putting each other in our profile pictures and that was kind of an indication" (Zhao et al., 2012). The present results echo such discourse about the commitment signaling from changing profile pictures.

Study 4 extends Studies 2 and 3 in several ways. Whereas Studies 2 and 3 focused on the effect of the presence of relationship awareness cues on Facebook, Study 4 probes into a more specific process of newly introducing relationship awareness cues on Facebook. This is a novel process that previous online and offline studies on relationship awareness have never

studied before. Furthermore, this study also shows that removing cues of relationship awareness can have negative consequences for one's dating partner; the removal reduces perceived partner commitment and leads to a lower level of relationship satisfaction.

General Discussion

Summary of Results

Over the last decade, the advent and increasing prevalence of Facebook has considerably changed how couples communicate and cultivate their relationships. Information revealing couples' relationship awareness has become more public and accessible than ever before. However, the relationship effect of such information on the perceiving partner has received limited research attention. Therefore, this thesis enquired into the effect of individuals' Facebook cues of relationship awareness on romantic partners' relationship satisfaction, as well as its underlying cognitive processes. Specifically, I conducted four studies examining Facebook cues of relationship awareness, converging on the conclusion that relationship awareness on Facebook improves romantic partners' relationship satisfaction. Furthermore, this association was partly explained by partners' perceptions of the Facebook cues of relationship awareness—namely, perceived partner commitment.

In detail, Study 1 provided an initial understanding of couples' real-life relationship awareness on Facebook and its association with the partner's well-being. Facebook users' relationship awareness as represented by “we-ness”—the tendency to use first-person plural nouns and possessives in status updates—was positively associated with their partner's tendency to use positive emotion words and subjective well-being. The results suggest a positive relationship between individuals' relationship awareness on Facebook and their partners' relationship satisfaction.

Study 2 used an experimental approach to delineate the effect of three Facebook manifestations of relationship awareness on partner's satisfaction and perceived partner commitment. The results showed that relationship awareness on Facebook, regardless of its specific manifestation, enhanced the perceiving partner's relationship satisfaction. However, its effect on perceived partner commitment differed among the manifestations: When individual perceived cues demonstrating his/her partner's posting a dyadic profile photo and listing a partnered status, the individual's perception of the partner's commitment increased, which, in turn, led his/her relationship satisfaction to increase. However, this pattern of effects did not occur for tagging the partner in status updates.

Based on Study 2, Study 3 further explored the effect of perceived partner commitment in the relationship between relationship thinking and partner's satisfaction. Participants experienced lower (vs. higher) satisfaction when they viewed a hypothetical partner's Facebook page with low (vs. high) commitment, even when the relationship awareness was presented through the partner displaying a dyadic photo and a partnered relationship status in his/her profile. Taken together, Studies 2 and 3 showed a causal relationship between an individual's relationship awareness on Facebook, the partner's perceived partner commitment, and relationship satisfaction.

Finally, Study 4 compared the effect of introducing and removing cues of relationship awareness on Facebook. The results supported that introducing cues of relationship awareness to one's Facebook profile (i.e., a dyadic profile photo) enhanced the partner's relationship satisfaction. Importantly, this study revealed that removing cues of relationship awareness reduced perceived partner commitment, which, in turn, led to a reduced relationship satisfaction. This study also showed the observed changes in perceived partner commitment and relationship satisfaction were not caused by the effect of the updated profile picture per se.

Taken together, this thesis shows the positive influence of Facebook manifestations of relationship awareness on romantic relationships and clarify the possible underlying cognitive mechanisms. This work has several important theoretical and practical implications.

Theoretical Implications

Novel Understanding of Relationship Awareness on Facebook

This thesis improves the current theoretical understanding of relationship awareness. Through investigating relationship awareness on Facebook, this research identified significant differences between online and offline manifestations of relationship awareness. Facebook affords new characteristics in couple's communication, such as directionless and asynchronization in communication, which further brings in changes to relationship awareness. Particularly, the previous differentiation and operationalization of relationship thinking and talking are no more applicable on Facebook. Therefore, it becomes unknown about how relationship awareness is manifested on Facebook, and whether the positive effect of relationship awareness on relationship satisfaction can be extended to Facebook. This thesis identified specific manifestations of relationship awareness on Facebook and investigated their associated effects on romantic partners. The four studies generally confirm that the beneficial effects of relationship awareness on relationship satisfaction observed in offline interaction is maintained online. Hence, the effect of relationship awareness is generalizable, at least to Facebook.

Understanding manifestations of relationship awareness on Facebook might facilitate establishing a more comprehensive framework to classify diverse forms of relationship awareness and investigate their relational effects. While whether relationship awareness is communicated is certainly critical for couples' relationship well-being, its publicness—whether it is demonstrated publicly or privately may also matter, and has not yet been explored in previous literature. Existing frameworks and literature primarily

concentrated on relationship awareness in couple's one-to-one interaction, with one's partner as the sole receiver of information. However, many behaviors that communicate relationship awareness in a one-to-many manner, such as wearing an engagement ring in daily life, are not captured by the existing research framework. The results of this thesis shed light on the effect of such specific form of relationship awareness, because relationship awareness on Facebook are communicated to not only the partner but also the "public." Future research may consider the publicness of relationship awareness as another important dimension to understand the distinct effects of diverse forms of relationship awareness. Indeed, there has been evidence showing that information revealed publicly or privately on SNSs does make a difference in perceivers' impression and sense of intimacy towards the information sender (Bazarova, 2012). Therefore, the body of research in this thesis, more than just a replication of past research, suggests a potentially fertile ground for future research, which may extend and broaden the theoretical framework of relationship awareness beyond couples' face-to-face interaction.

Next, this thesis demonstrated that relationship awareness cues on Facebook can lead to changes in perceiving partners' relationship satisfaction. Particularly, I demonstrated one possible cognitive process that is associated with this relationship and specifically determined that not all online cues representing relationship awareness share the same cognitive mechanism. Indeed, the positive effect of tagging the partner in status updates was not mediated by perceived partner commitment. Hence, it is important for future studies to investigate the cognitive processes of diverse manifestations of relationship awareness to gain greater insight into their possible consequences. Furthermore, this thesis highlights the need for further exploration of potential moderators. For example, past research has suggested that people tend to idealize their partner, especially when they care about and commit to that relationship (Lemay, Clark, & Feeney, 2007; Murray et al., 1996). It is therefore possible that

the perceived partner commitment derived from cues of relationship awareness on Facebook would be contingent on the perceiver's own level of commitment to the relationship.

By focusing on cues of relationship awareness cues on Facebook, these studies offer some new perspectives on relationship awareness. In this thesis, I considered the process of introducing and removing relationship awareness cues, finding that both led to changes in perceived partner commitment, which in turn changed their relationship satisfaction. This suggests the value of studying the cues of relationship awareness on Facebook. Specifically, while the introduction, removal, or changes in the degree of relationship awareness can be subtle in couples' face-to-face interactions, it is more pronounced on Facebook. As such, using Facebook, researchers can trace relationship awareness, increase, or decrease it experimentally, and capture its fluctuations over time. Future research using experiments or longitudinal methods are feasible, which suggests new research possibilities for how to gain a thorough understanding of relationship awareness.

An additional contribution of the present work is its focus on the perceivers of relationship awareness, which contrasts with previous research that concentrating on the individual who demonstrates relationship awareness (e.g., Emery, Muise, Dix, & Le, 2014; Orosz, Szekeres, Kiss, Farkas, & Roland-Lévy, 2015). For example, Emery et al. (2014) showed that users who have a low sense of security in a relationship are more likely to use a dyadic profile photo. Saslow et al. (2013) reported that those who tended to include the partner in their self-concept and felt more satisfied with the relationship were also more likely to post such photos. It is surprising that so little research has focused on the perceiver of relationship awareness. Inarguably, the feelings and behaviors of one partner intertwine with those of the other partner (e.g., Gere & Schimmack, 2013; Laurenceau, Barrett, & Pietromonaco, 1998), and both romantic partners have an equal role in relationship maintenance (e.g., Molero, Shaver, Fernandez, Alonso-Arbiol, & Recio, 2016; Schneiderman,

Kanat-Maymon, Zagoory-Sharon, & Feldman 2014; Weigel, 2008). As such, understanding both members of a close dyadic relationship are necessary to gain a complete understanding of the effect of relationship awareness, as well as the relationship (Asano, Ito, & Yoshida, 2016).

The Positive Effect of Facebook on Romantic Relationships

The research findings of this research refute the popular saying that “the best sign of a relationship is no sign of it on Facebook” (e.g., The best sign, n.d.) by demonstrating that involving the partner in one’s Facebook self-presentation has a beneficial effect on the relationship. Overall, past research has demonstrated that Facebook use has primarily adverse effects on romantic relationships. For example, Facebook is known to be implicated in as many as one-third of divorces in recent years (e.g., Goldwert, 2012). Dating couples also use Facebook to actively monitor each other (Lyndon, Bonds-Raacke, & Cratty, 2011; Tokunaga, 2011). This surveillance behavior increases the likelihood that one will misinterpret the other’s Facebook acts, which further promotes jealousy and conflict (Elphinston & Noller, 2011; Muise et al., 2009). Nevertheless, the results of this thesis portray another aspect of Facebook: that is, if one actively shows relationship awareness by involving one’s romantic partner in one’s Facebook self-presentation, the partner is likely to perceive greater commitment to the relationship and feel happy with it. This finding helps to provide a more holistic picture of how Facebook influences romantic relationships.

The present research also expands our understanding of the diverse types of self-disclosure on Facebook in romantic relationships. While most information posted on Facebook is about the poster, a considerable portion of it is about the poster’s relationships. In the past literature, these two types of information have been categorized as personal and relational self-disclosure. However, prior research on the relational effects of Facebook did not distinguish the two types (Attrill & Jalil, 2011). Combining the two types of self-

disclosure might suggest conflicting effects of using Facebook between romantic partners: from one perspective, revealing self-relevant information facilitates communication between partners, reduces mutual uncertainty, and improves their relationship (e.g., Papp et al., 2012). From another perspective, too much self-disclosure can appear narcissistic (Buffardi & Campbell, 2008; Wickel, 2015) and increase relationship complications (Clayton, Nagumey, & Simth, 2013), thereby reducing relationship quality. Such mixed results could be attributed to the type of information contained in one's self-disclosure. When information concentrates on a relationship per se and on revealing relationship awareness, it is more likely to benefit the partners; however, when information is purely self-centered, it might lead to negative outcomes.

Interpersonal Perception in Romantic Relationships

The present thesis highlights the importance of behavioral cues in relationship perception. Behavioral cues can be understood as physical traces of an individual's behaviors conducted in an environment (Gosling, Augustine, Vazire, Holtzman, & Gaddis, 2011). Inarguably, the behavioral cues of romantic partners intuitively affect their perception of each other. For example, keeping a couple photo in one's wallet, or placing a love token on one's office desk are possible cues that signal information to the partner and influence how the partner perceives the photo- or token-keeper. However, past work on interpersonal perception between romantic partners mostly focused on individual factors (e.g., attachment style) and situational factors (e.g., family structure) that influence individuals' perception of the other partner (Campbell, Simpson, Boldry, & Kashy, 2005; Sillars & Scott, 1983). The fact that the current research targeted behavioral cues on Facebook and how such cues influence partners' perceptions and relationship satisfaction add to the literature on interpersonal perceptions between romantic partners.

This work also sheds light on the matches and mismatches between the intended and the perceived meaning of certain Facebook cues between partners. First, from the perceiver's perspective, this work revealed that a dyadic photo and a partnered relationship status in the profile were interpreted as evidence of relationship commitment. Previous literature has demonstrated that a dyadic profile picture and a partnered relationship status are preferred and posted by individuals with high relationship-commitment (Emery et al., 2014; Toma & Choi, 2015). Hence, there is a correspondence in the meaning of these cues and partners' understanding of them. However, I also found that although tagging a partner, while previously found to be associated with commitment, may not be perceived by the partner as evidence of commitment. In other words, the message of commitment is not clearly delivered to the partner via tagging. Hence, the present work contributes to our understanding of valid and invalid cues of commitment on Facebook. More importantly, mismatches between the intention and the perception of cues can sometimes hinder partners' communication and lead to negative relationship experiences. Therefore, future research should consider both the sender's and the perceiver's interpretation of a given Facebook cue.

This thesis explores the relational consequences of a person's perception of his/her partner's behaviors, which has not been emphasized in the interpersonal perception literature, where accuracy and bias have been the central themes. Numerous studies have focused on how individuals' Facebook behaviors affect others' impressions of them, with research interest in the accuracy of cues (e.g., Back et al., 2012; Qiu, Lu, Yang, Qu, & Zhu, 2015). As people's impressions of others are likely to influence their future interaction intentions, understanding the relational consequences of diverse behavioral cues can assist in individuals' strategic self-presentation on Facebook, and thereby improve social relationships. Additionally, as there can be mismatches between the meaning and perception of certain cues, unintended messages may be transmitted that generate a negative relationship experience in

the recipient. For example, an individual's adding of an opposite-sex friend on Facebook might be perceived as a threat by the partner and may induce jealousy. It is necessary for future research to emphasize detecting such easily misunderstood cues, as well as their relational consequences.

Practical Implications

This thesis demonstrated that relationship awareness cues on Facebook can be critical to achieving and maintaining a satisfying relationship, and they can signal relationship commitment to romantic partners. These results offer some practical insights for romantic partners to reap benefits from their relationship. First, the results of the current research can be utilized to facilitate better communication between romantic partners. Specifically, individuals can reveal or remove cues of relationship awareness to subtly reveal their commitment or to express attitudes about a relationship. For instance, rather than directly communicating with a partner about their willingness to stay in a relationship, individuals can post a dyadic photo. In contrast, replacing a dyadic profile photo can be a way for individuals to communicate their dissatisfaction with their current relationship status or even to convey their intention to end a romantic relationship. Second, posts that demonstrate relationship awareness can enhance relationship well-being, not only by temporarily pleasing the romantic partner, but also by promoting the partner's commitment to the relationship. Joel and colleagues (2013) showed that individuals' perceptions of their partners' investment affect their commitment to the relationship. Hence, upon seeing a partner demonstrate evidence of their commitment to the relationship through Facebook behaviors, individuals might also more strongly commit to the relationship, which likely helps to preserve it. Furthermore, inducing relationship awareness in couples' offline interaction has been practically used to improve their relationship quality in clinical settings (Reid, Dalton, Laderoute, Doell, & Nguyen, 2006). The knowledge gained through this study—namely, that

demonstrating relationship awareness improves relationship satisfaction—can provide further theoretical background for clinical practice. Additionally, as the current results are based on Facebook, they suggest a potential new means for improving relationship quality, namely by managing cues of relationship awareness on SNSs.

Finally, the results obtained in these studies would be helpful for informing romantic partners of relationship etiquette on Facebook. Whereas the beneficial effect of revealing relationship awareness is perhaps readily acknowledged and applied by romantic partners, the potential adverse effect of removing it might not be widely understood. Therefore, individuals involved in romantic relationships might pay considerable attention to what they post on Facebook. Although Facebook is a platform designed for self-disclosure, a sudden removal of relationship information such as a dyadic photo might be unwise, as the act might invite unnecessary suspicion about individuals' level of commitment and thus engender disappointment in their partners.

Limitations and Future Research

Although the present results overall support my hypotheses, the results need to be interpreted with caution due to use of imagination tasks and its potential demand effect. The present experimental studies involved asking participants to put themselves in a situation that may or may not have happened to them before. Hence, the results are based on participants' expectations or past experiences rather than their actual responses at the event. Though past research frequently employed such research paradigm to induce changes in partner's relationship interactions (e.g., Knobloch & Solomon, 2002; Muscanell, Guadagno, Rice, & Murphy, 2013), and has suggested that partner's expectation of their responses based on imagination can be reflective of their actual responses (e.g., Acitelli, 1988; Lemay & Melville, 2014), one must be cautious when isolating the context while applying the results to understand partners' behaviors on Facebook. It remains unknown about what would happen

when the given scenarios take place in real life. Despite the correlational nature of Study 1, its findings regarding couples' language usage in status updates might provide collateral support for the findings obtained in the other experimental studies. Nevertheless, future research needs to tap into partners' actual interactions to complement the present results. Event sampling, through sending a brief survey daily on participants' hand phones, or asking participants to keep a diary for a period can help researchers collect partner's real-life experience within their daily interaction.

Moreover, the potential demand effect may also hinder the interpretation of the current results. In Studies 2 and 4, participants' attention was explicitly drawn to the change in Facebook content, which makes it likely that they will feel they are supposed to have a reaction to this manipulation. The current results demonstrated that only the effect of relationship status and profile picture were in line with the "demanded effect," but not the effect of tagging. It seems that participants do respond differently to diverse research stimuli rather than uniformly fulfilling an experimenter demand. Yet, their distinct expectations on what is demanded may be deviant from the experimenter's actual hypothesis; hence, the results may still be confounded by potential demand effect. Future replication studies can address this issue by asking participants to respond the scenarios as they thought the experimenter would want them to (e.g., Esses & Dovidio, 2002). If the results are not consistent with the presently obtained results, it would help refute the possibility of the demand effect.

Although past research has supported the manifestations of relationship awareness suggested in this thesis, including posting a dyadic profile picture, a partner relationship status and tagging (Steers, et al., 2016), whether these Facebook behaviors actually represent a person's relationship awareness is unknown. Given that Facebook is often used for impression management (Rui & Stefanone, 2013), its users can present an image that is

deviate from their actual self (Gil-Or, Levi-Belz, & Turel, 2015), or create a depersonalized profile that is not relevant to how they are privately (Robards & Lincoln, 2016). For examples, some people disclose only the professional aspects about themselves, without revealing anything related to their relationship. Therefore, posting or hiding relationship information on Facebook can be just a part of the strategical presentation of oneself rather than a cue signifying whether one has relationship awareness. Comparably, from the perceiver's perspective, it is also unknown whether they indeed perceive posting relationship information on Facebook as cues of the posting partner's relationship awareness. It is important for future work to consider Facebook users' motivation of impression management in influencing how perceivers regard relationship information on Facebook, as well as its association with posting partner's own relationship awareness.

Another limitation relevant to the research method is that I did not conduct a priori power analysis to ensure sufficient sample for each study. Such procedure has been advocated to ensure that researchers can recruit large enough sample size to detect small effect size and reduce false positives (Vazire, 2016). I followed up with a post-hoc power analysis to examine my current sample size. Based on G*POWER (Erdfelder, Faul, & Buchner, 1996), I found that Study 2 required 158 participants (27 per group) and Study 4 required 128 participants (32 per group) to reach a medium effect size with 0.8 power ($p = .05$). Both studies recruited enough participants. However, for Study 3, 64 participants per group were needed to reach the same statistical power. Although the partial $\eta^2 = .11$ (i.e., $f = .35$) in the study demonstrated a medium to large effect size, and the use of 20–30 per group can be considered a norm in social psychological experiments (e.g., Bullard, Manchanda, & Szykh, 2017; Avnet, Laufer, & Higgins, 2013), I must admit that the current sample size is not sufficient, and a priori power analysis should have been conducted to determine an adequate sample size for all studies.

Furthermore, although most participants were in a dating relationship, some participants (e.g., 34% in Study 2) were married. Research has shown that the effect of relationship awareness might be less prominent among those who are in a committed, long-term relationship than among those who are in a relationship with lower intimacy (Knobloch & Solomon, 2006). Researchers have suggested that highly committed partners tend to have a sense of self that is already highly integrated with their partner. Any beneficial effect of relationship awareness would thus be limited. A further decomposition of couples' relationship stage would be informative for further delineating how relationship stage influences the effect of relationship awareness.

There are numerous individual and situational factors that I did not consider in the present research, which should thus be considered in future research on the topic. For example, as mentioned earlier in Study 4, whether Facebook users regard posting relationship awareness cues as a Facebook norm may affect their perception of partner commitment and subsequently their relationship development. For those who perceive relationship awareness cues as Facebook norm, they might see the partner's revealing of these cues on Facebook as an obligation rather than commitment to relationship. However, for those who do not associate these cues with norm, they likely imply more commitment from partners' demonstrating these cues on Facebook.

Attachment style might influence individuals' preferences with respect to displaying and perceiving relationship awareness cues. Attachment style influences the tendencies one demonstrates relationship awareness. More anxiously attached individuals are more likely to integrate their partner's information in Facebook (Emery et al., 2014). Attachment type also influence how one interprets cues of relationship awareness on Facebook. More anxious dating partners may also be sensitive to, and likely to ruminate on, every change their partner makes on Facebook; therefore, the posting partner's relationship awareness cues on Facebook

exerts a relatively substantial impact. Besides individual factors, situational factors such as the overlap between partners' friend circles, might also have an effect, because these factors, to some degree, determine how social others can influence a relationship (Jin & Oh, 2010) and how relationship awareness is a public announcement of the relationship status.

Future study should look beyond the relationship awareness on Facebook alone by investigating the interplay between offline and online relationship awareness cues. Facebook is only a part of modern romantic partners' interaction, much of their interaction takes place outside of Facebook. How Facebook relationship enhancement tactics may improve relationship satisfaction may greatly depend on how much time partners can spend with each other outside of Facebook. For those in long-distance relationships, Facebook cues of relationship awareness might be more meaningful for them, and thus more effective in improving relationship quality as they have limited shared space for interaction. However, for those who frequently meet in real life, their face-to-face displays of relationship awareness cues may matter more. Hence, the degree of couple interaction taking place outside of Facebook may moderate the effect of relationship awareness on relationship well-being.

The discrepancy between online and offline relationship awareness cues may be another important aspect that influences partners' relationship experience. Research shows that if an individual presents a Facebook image that is inconsistent with their actual self in real life, it may backfire in their offline social relationship (Gil-Or, Levi-Belz, Turel, 2015; Scott & Ravenscroft, 2017). If an individual portrays him/her self as a "perfect lover" by showing many relationship awareness cues on Facebook, but fails to attend to the partner in their actual interactions; or he/she shows lots of affection and being attentive in face-to-face interaction, but displays minimum cues of relationship awareness on Facebook, both situations are likely to result in the partner's disappointment or even suspecting the individual's openness about the relationship. Relationship awareness demonstrated both

online and offline together influence partners' relationship experience and need to be more thoroughly analyzed in future work.

The specific perception associated with Facebook relationship awareness cues deserves more research attention as well. For example, because it is effortless to put up relationship awareness cues on Facebook, it is likely that perceiving partners deemed them as superficial, and subsequently discount their relational effect. Nevertheless, past research has suggested that seemingly superficial Facebook behaviors such as "liking" a post can promote communication partner's closeness (Tong & Walther, 2011). Relationship awareness cues on Facebook may also be perceived as more strategic than those happened offline. However, there is also evidence showing that relationship enhancement tactics can be strategic as well as spontaneous (Dainton & Stafford, 1993; Ogolsky, Monk, Rice, Theisen, & Maniotes, 2017). Therefore, it remains unclear whether relationship awareness cues on Facebook are indeed more superficial or strategic, and how these would influence partner's relationship experience. Future studies should investigate how potential divergent perceptions of relationship awareness cues online and offline might influence partners' commitment perception and relationship satisfaction differently.

Other potential future directions include examining the reciprocity of relationship awareness between partners and its fluctuations over time. One defining characteristic of partners' relationship satisfaction is reciprocity to each other's requests or signals (e.g., Acitelli & Antonucci, 1994). Reciprocating the partner's signals denotes regard and care for him/her, and symbolizes healthy communication. Partners naturally desire reciprocity of commitment (Holmes & Rempel, 1989). Individuals who post relationship awareness cues might also hope to receive similar feedback from their partner. Future reciprocating behaviors between partners would certainly help solidify relationship bonds. Moreover, as noted previously, relationship awareness on Facebook can be removed. Although removing such

cues is believed to signal low commitment, it may or may not reflect the actual level of commitment. A possible mismatch between one partner's true attitude toward the relationship and the other partner's perception might further hinder any long-term effects of relationship awareness. This may be contrasted with previous research that demonstrating a linear, positive effect of relationship awareness in the long term (Tan et al., 2012). Examining relationship awareness from a long-term perspective in the new media context is thus necessary.

Relationship awareness can be important in other social relationships. Previous research on social capital indicates that SNS usage increases social capital—"resources accumulated through the relationships among people" (Ellison, Steinfield, & Lampe, 2007, p 1145). Given that relationship awareness improves receivers' relationship satisfaction, engaging in Facebook activities that reflects one's relationship awareness might also increase individuals' own social capital. Being "relationship aware" in Facebook interactions is a factor that possibly accounts for increments in individuals' social capital in that medium. Future studies might consider relationships other than those of a romantic nature, and study how demonstrating relationship awareness can influence other social relationships.

Finally, although Facebook is a typical SNS that carries the key attributes of SNSs; however, not all SNSs share the same features. Diverse SNSs have been created to cater to the various needs of distinct groups of people. Therefore, my findings may or may not generalize to other SNSs that deviate from Facebook's design. For example, on another popular SNS—Twitter—a user's friends circle comprises people with who they are less acquainted with (or never met) compared to Facebook. Revealing relationship awareness on Twitter might involve less social pressure, and hence, signal commitment to a lesser degree than on Facebook.

Conclusion

Until this thesis, it was unclear what effect individuals' presentation of abundant relationship-related information on SNSs had on their romantic partner. This thesis considered a popular SNS—Facebook—and discovered that relationship awareness on Facebook had a beneficial effect on romantic partners' relationships. Facebook behaviors that integrate one's partner into one's self-presentation can enhance the partner's relationship satisfaction through perceived partner commitment. Practically speaking, partners can employ cues of relationship awareness on Facebook to please each other; however, partners must be cautious when they consider reducing or removing those cues, as removal can communicate unfaithfulness and be a potential source of suspicion about the poster's relationship intentions. This thesis presents an initial research endeavor to understand relationship awareness on new digital media and suggest that more research attention should be directed toward this topic.

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Footnote

1. When partners changed from a personal photo to a dyadic photo, participants' relationship satisfaction significantly mediated the effect of relationship awareness on perceived partner commitment, $B = .35$, CI [.07, .73]. With respect to tagging partners on status updates, in this analysis I found a significant mediating effect of relationship satisfaction, $B = .20$, CI [.04, .45]. However, for the condition in which participants imagined the partner revealed a partnered relationship status, the mediation effect of relationship satisfaction on perceived partner commitment did not reach statistical significance, $B = .18$, CI [-.01, .44].

Figures

Figure 1

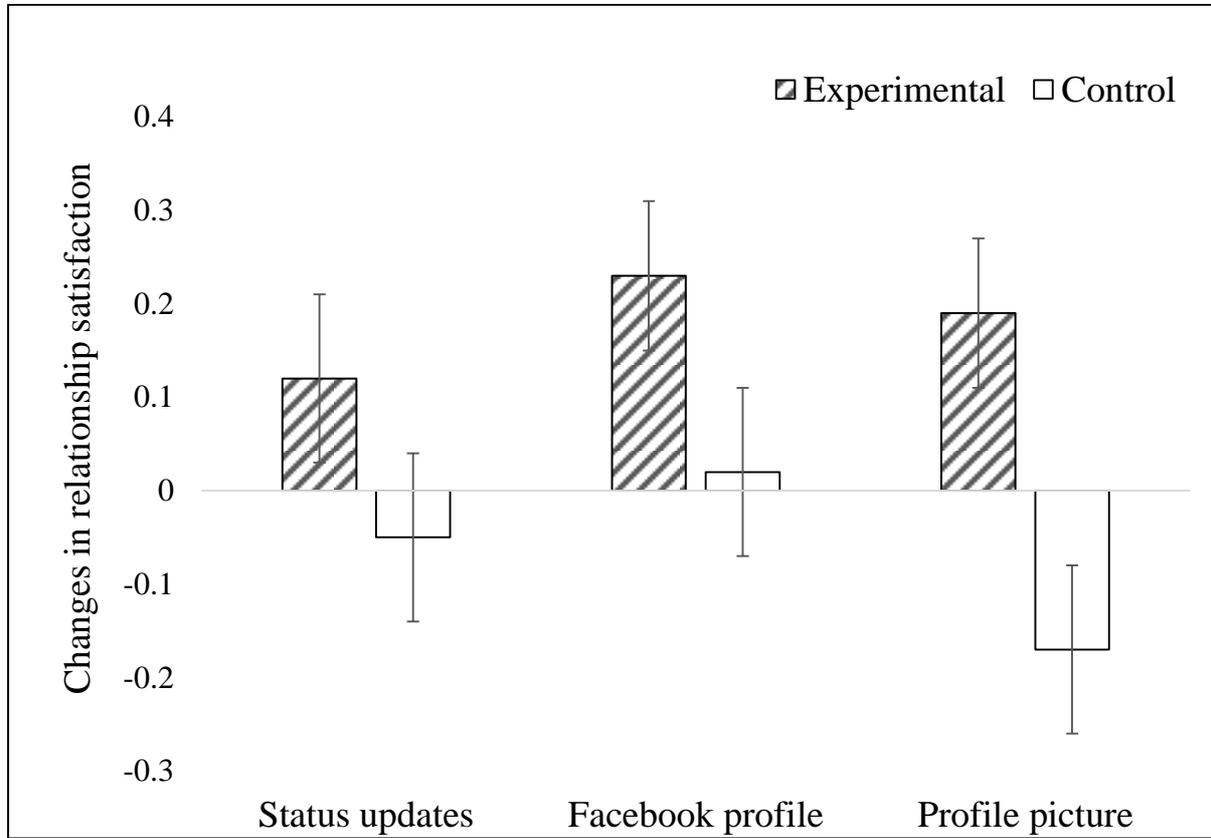


Figure 1: Change in relationship satisfaction as a function of Facebook behavior and experimental conditions in study 2.

Figure 2

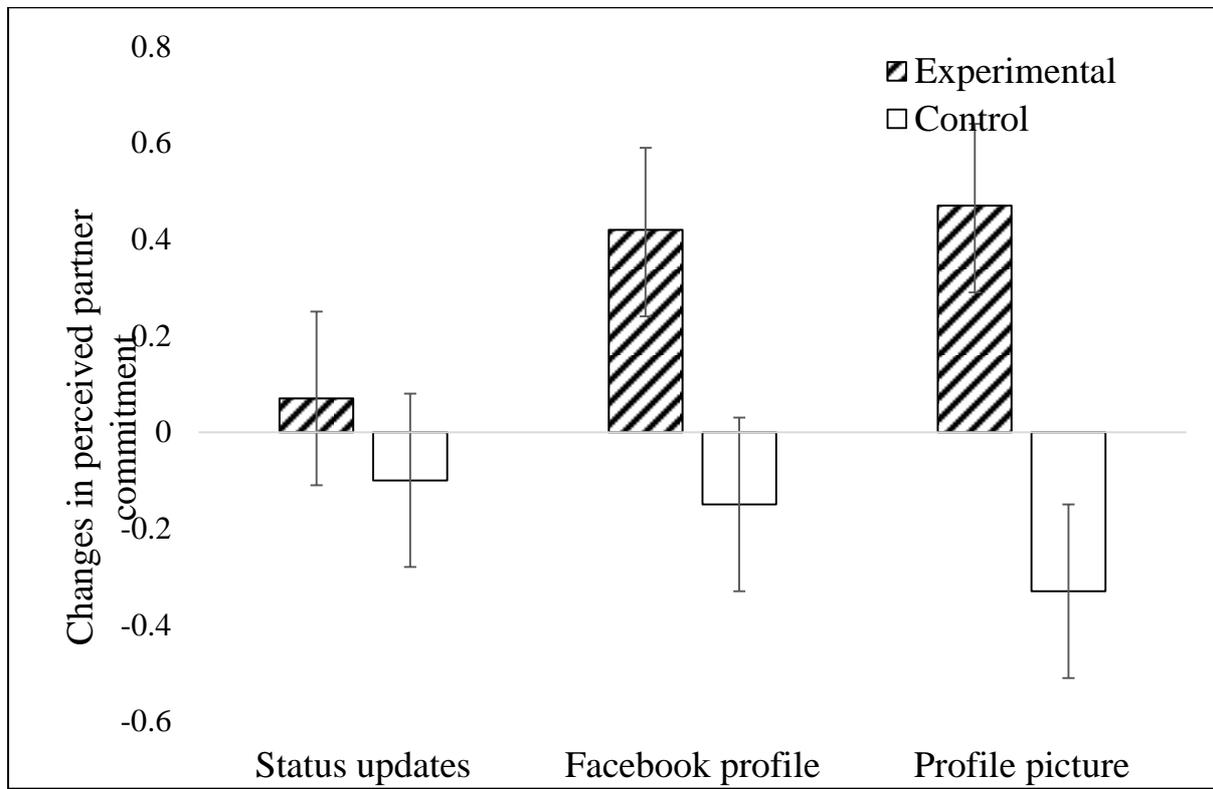


Figure 2: Changes in perceived partner commitment as a function of Facebook behavior and experimental conditions in study 2.

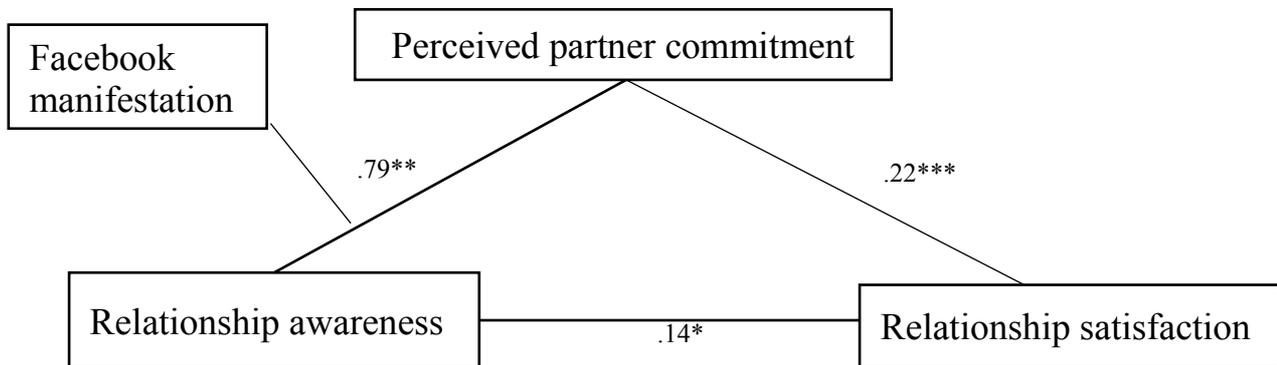
Figure 3

Figure 3: Conditional mediation effect of the perceived partner commitment on the relationship between relationship awareness and relationship satisfaction with Facebook manifestation as moderator on path *a*. Experimental condition was dummy coded as 1, control condition was coded as 0.

Figure 4

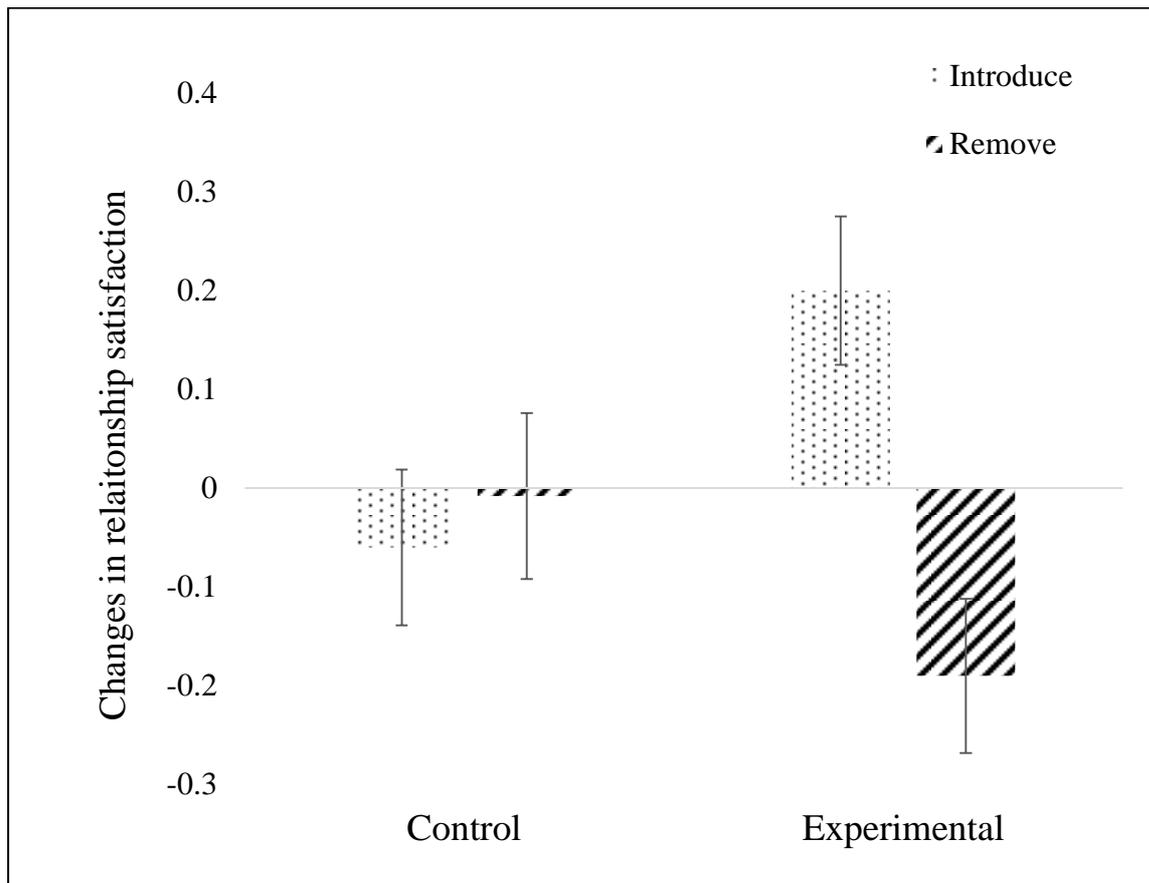


Figure 4. Interaction effect between type change and relationship awareness on changes in relationship satisfaction in study 4.

Figure 5

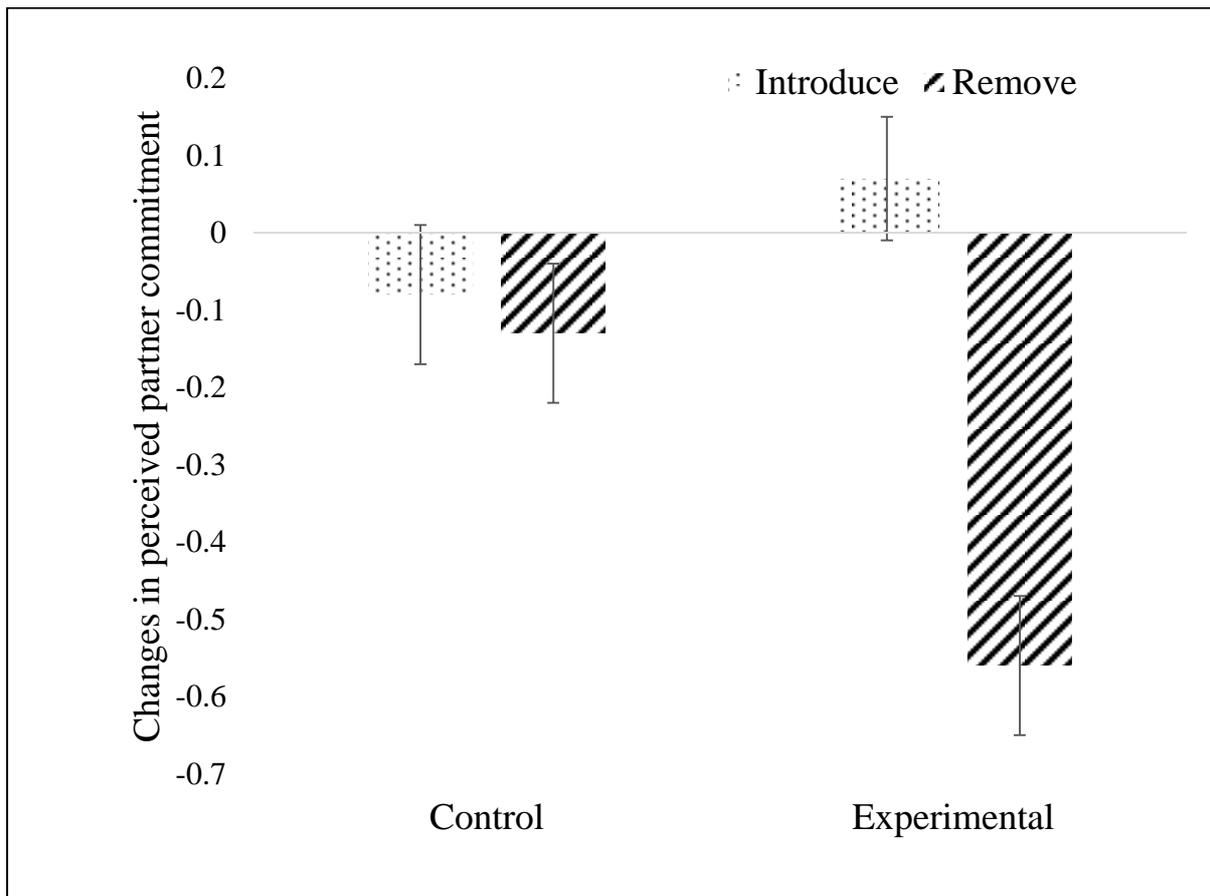


Figure 5. Interaction effect between type change and relationship awareness on changes in perceived partner commitment in study 4.

Tables

Table 1

Study 1 - Descriptive statistics and bivariate correlation between variables

	1	2	3	4	5	6
1 Partners' we words	.17(.44)					
2 Users' positive word tendency	.07*	2.6(2.18)				
3 Users' subjective well-being	.14	.22**	4.44(1.43)			
4 Users' we words	.07*	.14**	.07	.15(.31)		
5 Partners' positive word tendency	.12	.27**	.36**	.07*	2.98(2.77)	
6 Partners' subjective well-being	.22	.10	.27*	.10	.17	4.43(1.40)

Note. Means are indicated in the main diagonal with standard deviations indicated in parentheses. * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 2

Mediation effect of perceived partner commitment (Study 2 & study 4)

Effect	Study 2			Study 4	
	Profile picture	Relationship status	Tagging	Introduction	Removal
<i>a</i>	.79**	.55	.17	.21	-.47***
<i>b</i>	.33***	.12**	.21***	.54***	.40***
<i>c</i>	.36*	.19	.21*	.21	-.12
<i>c'</i>	.09	.12	.17	.09	.06
<i>Indirect effect</i>	.26	.07	.04	.11	-.19
<i>Indirect effect 95% CI</i>	[.08, .50]	[.01, .18]	[-.02, .18]	[-.01, .30]	[-.44, -.06]

Note. 0 = control, 1= experimental; * $p < .05$, ** $p < .01$, *** $p < .001$.

Values are unstandardized regression coefficient in the mediation model

a represents the effect of Relationship awareness on perceived partner commitment

b represents the effect of Perceived partner commitment on relationship satisfaction

c represents the total effect of relationship awareness on relationship satisfaction

c' represents the direct effect of relationship awareness on relationship satisfaction

Appendices

Appendix A

Paragraph to introduce Facebook profile information, profile picture and tagging in study 1.

Facebook has become an important tool for people to communicate and self-express. Here are some basic functions afforded by Facebook. Facebook profile allows users to indicate their basic background information. It contains various aspects about oneself. Facebook profile picture is the featured picture of one's online profile. It is like an avatar on Facebook. On Facebook, tagging is a function that allows users to reference any friends, groups or events. It could be added on a photo or in a status update.

Appendix B

The scale measuring perceived partner commitment

1. My dating partner want our relationship to last for a long time.
2. My dating partner is committed to maintaining his/her relationship with me.
3. My dating partner would not feel very upset if our relationship were to end in the near future. (*Reverse coded*)
4. It is likely that my dating partner will date someone other than me within the next year. (*Reverse coded*)
5. My dating partner wants our relationship to last forever.
6. My dating partner is oriented toward the long-term future of his/her relationship (For example, he/she can imagine being with me several years from now).

Appendix C

The scale measuring relationship satisfaction

1. How well does your partner meet your needs?
2. In general, how satisfied are you with your relationship?
3. How good is your relationship compared to most?
4. How often do you wish you hadn't gotten in this relationship? (*Reverse coded*)
5. To what extent has your relationship met your original expectations?
6. How much do you love your partner?
7. How many problems are there in your relationship? (*Reverse coded*)

Appendix D

Frequency of Facebook usage

How often do you use Facebook?

1. Never
2. Less than once a month
3. 2-3 times a month
4. Once a week
5. Several times a week
6. Daily