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Self-presentation, Interpersonal Perception, and Partner Selection in Computer-mediated Relationship Formation

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Self-presentation, Interpersonal Perception, and Partner Selection in Computer-mediated Relationship Formation

By

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Abstract

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The use of social and technological intermediaries to seek intimate partners has a long history. Yet the affordances and limitations of modern computer-mediated communication (CMC) systems built for this purpose — specifically, online dating sites — present new challenges and opportunities for those who use them to initiate intimate relationships. The sheer number of potential mates available on such sites is tremendous, but accurately gauging their appeal and suitability for a relationship can be difficult through CMC.

This dissertation presents a longitudinal survey of users of a major U.S. online dating service as they interact with potential dates online, meet them in person, and in some cases establish intimate relationships. The survey addresses two research questions: how interpersonal perceptions change when online daters meet in person for the first time, and how online and offline perceptions are associated with relationship duration, satisfaction, and intimacy.

With respect to the first research question, I find that on average measures of liking and willingness to enter into a romantic relationship decline after participants meet their dates face-to-face for the first time. This result held for both inexperienced and experienced online daters. With regard to the second research question, I find that participants' perceptions of their dates before they have met in person generally do not predict the duration of the subsequent relationship, if any. However, their perceptions on many dimensions shortly after meeting in person are significantly associated with relationship duration. At the same time, among those who do begin dating, perceptions on numerous dimensions both pre-meeting and post-meeting are associated with intimacy and, to a lesser degree, relationship satisfaction in the weeks after the first date. That is, it appears that initial judgments from online interaction do not predict whether a couple will form a relationship, but these judgments do predict metrics of relationship quality if they choose to do so.

To my parents, Tom and Cay,
for inspiring me to be curious

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Preface

My first experiences with computer-mediated communication systems came in the early 1990s, before the crackle of modems negotiating a connection had given way to the ease of Ethernet and Wi-Fi. In the two decades since then, the online world has gone from esoteric to mainstream and from marginal to integral in modern social life. Yet even as interpersonal interaction moves increasingly online, our understanding of its dynamics in this new milieu lags behind.

Selecting an intimate partner is among the most important decisions in our lives. As people initiate this process more and more often through computer-mediated communication channels, it becomes vital to gain a fuller understanding of how this deeply personal and interpersonal undertaking unfolds in the online environment as compared to the familiar face-to-face world. This need is what motivated the present work, which contributes to a small but growing body of research about computer-mediated relationship formation.

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My profound thanks go to the members of the research team with whom I have conducted this work over the past six years: Lindsay Shaw Taylor, Marti Hearst, committee member Jerry Mendelsohn, and committee chair Coye Cheshire. Collaborating with them and learning from them has not only been a true pleasure but also made me a better scholar.

A particular note of thanks is due to my advisor, Coye, whose thoughtful mentorship and collaboration in teaching as well as research have been intellectually stimulating, professionally valuable, and at the same time a lot of fun. Furthermore, this manuscript specifically and my understanding of social psychology generally have benefitted greatly from Jerry's thoughtful critiques and his eye for detail. I am grateful as well for Anno Saxenian's support and guidance in her roles as both the third member of my committee and the Dean of the School of Information.

Other faculty members at UC Berkeley have also guided me in important ways. Yale Braunstein kindly and capably chaired my qualifying examination, and the late David Freedman taught me both the practice and the practical limits of statistical modeling through his lucid teaching and writing.

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1 Introduction

The study of human relationships and the study of communication technologies each have long and diverse histories. Not just scientists but also poets and artists have examined the origins of interpersonal attraction as well as the patterns of marriage and family that emerge in communities and societies. More recently, researchers have formalized what users of communication technology have long known: different media facilitate communication in different ways, leading to distinct behaviors and norms in the fulfillment of long-familiar human goals. In this work, I seek to bridge these two areas of study by examining relationship formation through a computer-mediated communication system — specifically, an online dating web site.

"Online dating" is a bit of a misnomer. Unlike most computer-mediated communication systems, which are meant to support online communication, whether with strangers or with people the user already knows, online dating sites are designed to introduce users to people they do not know so that they can meet them offline. Any dating that may follow will occur offline, so perhaps "online meeting" or "online relationship initiation" would be more accurate than "online dating," though as we will see, crucial first steps in the prelude to dating do take place through online dating sites.

1.1 Match-making technology: The old and the new

The first online dating sites appeared in the mid-1990s, but people used various kinds of intermediaries, both human and technological, to form intimate relationships long before the advent of the internet. These intermediaries may offer various services: facilitating searches for potential mates from among a pool, matching people with appropriate mates, or simply providing a venue for interaction (Ahuvia and Adelman 1992).

In post-Renaissance Europe, "early modern people were ... willing to turn over decisions to match-makers and go-betweens, thus relieving themselves of personal responsibility" (Gillis 1999, p. 51). Shadchanim, the Hebrew term for "match-makers," have helped Jews find marriage partners since ancient times (Wein n.d.), and today modern shadchanim even advertise on the internet. Secular match-makers still operate today as well — for example, the service "It's Just Lunch," which markets itself to busy business-people. Such services provide a circumscribed set of potential mates from which a client can choose or, in some cases, explicit recommendations of individuals. Arranged marriage, which places the entirety of the choice in the hands of an intermediary, has a

long history in some cultures, too. Indeed, the notion of choosing a mate freely and marrying for love rather than familial or economic reasons is historically recent (Coontz 2005).

Personal advertisements in print also have a long history. Their use has been documented as long ago as the late 1600s in England and the mid-1800s in the United States, by those seeking both casual ("social") relationships and marriage (Cocks 2009, Epstein 2010). In the early 1900s, one English periodical dedicated to personal ads, the *Link*, was shut down and its owner convicted of corrupting public morals for publishing ads allegedly soliciting casual and homosexual partners (Cocks 2009). In recent decades, personal ads have appeared in publications ranging from alternative newsweeklies to the *New York Review of Books*.

Typically, publishers of personal ads have facilitated the anonymous exchange of letters among their customers, and some even acted as hubs for group discussions, serving as rudimentary postal-mail forms of the message boards and social networking services now popular on the internet (Cocks 2009). Postal mail, itself a mediating communication technology, has much in common with asynchronous, text-based electronic media such as email. Indeed, Whitty (2007) likens bonds formed through postal letters to those that arise through computer-mediated communication. The same phenomena of social distance and idealization that feature prominently in recent theories about online communication (see Chapter 2) are typical of interaction through the mail (Whitty 2007).

Offline intermediaries, whether human or technological, have helped people find romantic partners for centuries. Online dating, by contrast, is relatively new, but computer-based match-making is not. Operation Match was a computer dating service created by Harvard students in the mid-1960s to identify potential romantic matches among college students who submitted personal profiles to the service. More than 90,000 people sent away for their matches (Shalit 1966). As *Look Magazine* described it:

> Into the mails speed the compatible pairs, into P.O. boxes at schools across the land. Eager boys grab their phones… anxious coeds wait in dorms … a thousand burrrrrrrings jar the air . . . snow-job conversations start, and yeses are exchanged: A nationwild dating spree is on. Thousands of boys and girls who've never met plan weekends together, for now that punch-card dating's here, can flings be far behind? (Shalit 1966, p. 30)

In many ways, Operation Match performed the same function as modern online dating sites, in particular those sites focused on compatibility matching. Modern systems differ in a few crucial ways, though. First, they allow users to interactively explore and refine the space of possible matches

based on their own criteria, rather than providing a pre-determined list of the best candidates. This introduces an element of additional choice and highlights parallels with comparison shopping. Second, while *Look Magazine* describes first contact among potential dates via a phone call, in online dating the first communication occurs through an email message on a computer. Moreover, detailed personal profiles, rather than the brief descriptions in Operation Match's lists, give users of modern systems room to craft careful self-presentations with a wealth of information, in many cases including photos and sometimes even videos of themselves. These profiles and the possibility of extensive online communication before the first face-to-face meeting make the process of getting to know a prospective date a different process, both richer and more fraught with potential pitfalls, than Operation Match members experienced in the 1960s.

1.2 Adoption of online dating

Many more people use modern online dating sites than ever used Operation Match and its ilk. A 2006 survey from the Pew Internet and American Life Project found that 16 million adults in the U.S. alone, or about 11% of adults who use the Internet, had visited an online dating site. Of these, 7 million had gone on a date with someone they met through a site (Madden and Lenhart 2006). Although older adults use online dating, its use is more prevalent among the young. In the Pew survey from 2006, approximately 18% of 18- to 29-year-old Internet users in the U.S. reported that they had visited a dating site, as compared to 3% of those over 65 (Madden and Lenhart 2006). A 2010 poll of Australians conducted by the market research firm Nielsen at the request of RSVP.com.au, an Australian online dating site, found that one out of four adults had used online dating, and 62% of these online daters had met someone from a dating site in person (Toy 2010).

1.3 Perceptions of online dating

The first modern online dating sites appeared in the mid-1990s. At the time, the web was new, and few people used the Internet. It is thus not surprising that online dating was sometimes portrayed, like many activities on the Internet, as the refuge of socially awkward technology enthusiasts. Even as recently as 2003, news articles suggested that some of this stigma still clung to online dating (e.g., Naraine 2003), but some recent coverage describes it as a thing of the past (e.g., Firesheets 2010). Interestingly, researchers before the advent of online dating found evidence that the stereotype of dating agency members as socially inept may not be wrong. Goodwin (1990) reported that people who belonged to an offline British dating agency scored lower than the general population on scales measuring assertiveness and dating skills. The response rate to Goodwin's questionnaire

was low (14 percent), but the demographics of respondents were not substantially different from the dating agency's overall membership (Goodwin 1990). On the other hand, Ahuvia and Adelman (1992), noting that the evidence for social deficiencies among dating agency members is mixed, suggest that such members may turn to an intermediary not because they are undesirable but because they are unusually selective.

As more people use online dating, it becomes less likely that most or even many of them are substantially less socially competent than the general population. Nonetheless, some stigma persisted at the time of the Pew survey in 2006: 29% of Internet-using adults thought that online daters were "desperate." These same respondents were split evenly at 44% on whether online dating is a "good way to meet people," and 66% felt that online dating was risky because of the amount of personal information it exposed via the Internet (Madden and Lenhart 2006).

1.4 Why study online dating?

Online dating sites present a unique venue for social scientific research. They are unusual among computer-mediated communication systems in that they are designed to facilitate the transition from online to face-to-face interaction, making them an ideal environment for examining the differences between these distinct modes of communication. Identifying such differences will deepen our understanding of how interpersonal communication changes as it moves increasingly from offline venues to online ones, and it will aid the design of new generations of computer-mediated communication systems.

Furthermore, dating sites provide an unprecedented virtual laboratory for studying the formation of intimate relationships. In most social psychological research on attraction and relationship formation, participants either evaluate strangers in a lab or report on their experiences in an established relationship. The middle ground — what happens in the formative stages of a relationship? — is understudied because it is hard to study. People who just met do not yet know whether they will become a couple. By surveying online dating users and analyzing behavioral metrics, we can obtain insight into the formation of nascent relationships and determine what early indicators predict later relationship outcomes. In a context as central to our lives as the choice of a romantic partner, it is important to consider these questions in an ecologically valid venue like an online dating site, where real users are really motivated to find real partners. Moreover, such knowledge can be used to improve dating sites, helping them to match users with more compatible potential partners and facilitate more informative exchanges before they meet in person.

1.5 About this dissertation

In the following chapters, I will describe a longitudinal survey of online dating users from a major U.S.-based dating site. This survey sought to examine how interpersonal perceptions changed when online daters met in person for the first time and how their relationships progressed subsequently. The study was developed and executed over six years in collaboration with a team of researchers from the School of Information and Department of Psychology at UC Berkeley as well as the generous cooperation and assistance of product managers and engineers from the dating site.

The rest of this document proceeds as follows: Chapter 2 presents a review of related literature concerning intimate relationships, computer-mediated communication in general, and online dating in particular. Next, Chapter 3 details my research questions, hypotheses, and methodological approach. In Chapter 4, I describe the results of the survey. Chapter 5 offers a discussion of these results and ideas for future research. The survey materials, detailed results tables, additional figures, and two supplementary analyses are given in the appendices.

2 Related literature

The present study of relationship formation through online dating draws on literature from the distinct but overlapping fields of social psychology and interpersonal communication. In this chapter, I review literature in three primary areas: intimate relationships, computer-mediated communication generally, and online dating specifically.

2.1 Intimate relationships

Most of the scientific study of intimate relationships has focused either on initial attraction or on the characteristics of people in established relationships. The early stages of relationship formation are not as well-understood, perhaps due to the difficulties of identifying and recruiting new couples before they are certain they will form a lasting relationship. Nonetheless, the wealth of social psychological research on intimate relationships and its limitations have guided the hypotheses and design of the present study. In this section, I provide an overview of the most relevant research in this area.

2.1.1 Interpersonal attraction

Classic studies of interpersonal attraction emphasize the importance of physical attributes over other factors such as personality and intelligence (e.g., Dion et al. 1972; Walster et al. 1966). Accordingly, online dating sites often urge their users to post photos of themselves to increase the chances that potential dates will contact them. Indeed, 85% of interviewees in a study of Australian online dating users said they would not contact someone without a photo on his or her profile (Whitty and Carr 2006), and as I will discuss later in this chapter, my colleagues and I showed in a laboratory study that photos were the part of a profile that most strongly predicted the overall attractiveness of the whole profile (Fiore et al. 2008).

Research based on evolutionary psychology shows that women are attracted to men with high income and status, which would allow them to provide for a family. Men, on the other hand, are attracted to women who appear young and healthy, which correlates with fertility (Buss and Barnes 1986, Buss 1989). Characteristics like occupation and height in men and unwrinkled skin and good muscle tone in women serve as indicators of these qualities (Buss 1989). Related studies have shown that observable physical characteristics, such as facial symmetry and waist-to-hip ratio,

are associated with physical attractiveness, perhaps also as markers of reproductive fitness (Singh 1993, Grammer and Thornhill 1994, Marlowe and Wetsman 2001).

According to evolutionary theory, women should be more selective than men in picking a mate because their parental investment is greater. Thus, we might expect women to adopt a long-term strategy, choosing a high-quality partner with whom to produce and support healthy children. In contrast, we might expect men to adopt a short-term strategy, taking an approach that is less concerned with partner quality in order to father more children (Trivers 1972, Greer and Buss 1994).

Another important predictor of attraction is "mere exposure" (Zajonc 1968) to a person. In a college classroom context, female confederates who came to class more often were rated more attractive than those who attended less often, even though none of the confederates interacted with other students (Moreland and Beach 1992). In a study of college student residences, neighbors were more likely than non-neighbors to form friendships, as were students on the same floor as compared to those on different floors, or those in the same building versus those in different buildings (Festinger et al. 1950).

2.1.2 Matching and compatibility

A one-way judgment of attractiveness, especially one based on a static stimulus like a photograph, does not suffice to characterize why a couple become attracted to each other. Individual characteristics certainly influence attraction, but it is important to consider qualities of the dyad as well — what traits do they share? How do they differ? Similarity within dyads on a given dimension is called "positive assortment" on this dimension, and the notion that people seek mates like themselves in a variety of dimensions is called "assortative mating" (Vandenberg 1972). Positive assortment, or homophily, is evident in terms of physical attractiveness, socioeconomic status, ethnicity, attachment style, and certain personality traits, among many other characteristics.

Similarity within a dyad on a variety of dimensions is associated with attraction. Montoya and colleagues (2008) found in a meta-analysis of more than 300 studies that actual similarity was associated with attraction in initial interactions but not in established relationships. However, *perceived* similarity was associated with attraction in both initial impressions and established relationships (Montoya et al. 2008).

Personality traits constitute a particular focus in the literature on mate selection and relationship satisfaction. Watson and colleagues (2000) found in a cross-sectional study of the Big Five personality traits in both married and dating relationships that higher levels of extraversion, consci-

entiousness, and agreeableness and lower levels of neuroticism (also called negative emotionality) were associated with greater relationship satisfaction. This relationship held between participants' own personality traits and their own relationship satisfaction as well as between their perceptions of their partners' personality traits and their own relationship satisfaction. The negative effects of neuroticism on relationship satisfaction, in particular, have been documented extensively in other studies as well (e.g., Robins et al. 2000, Robins et al. 2002, Fisher and McNulty 2008). In a review of earlier research, Karney and Bradbury (1995) noted that neuroticism "shows greater effects on marital outcome than the other four factors" of the Big Five.

Furthermore, some evidence exists for matching on personality traits among established couples, though it is not as simple as positive assortment. Klohnen and Mendelsohn (1998) found that mere similarity or complementarity did not adequately characterize the interrelationship of established couples' personality traits. Rather, people in their sample of couples appeared to have chosen partners who shared personality traits that they liked in themselves but lacked those traits that they disliked in themselves — more precisely, those traits that did not match their conception of ideal self. However, this relationship to the ideal-self personality traits held only for participants' perceptions of their partners' traits, not the partners' self-ratings of their traits. Moreover, a subsequent study by Zentner (2005) showed that participants' ideal personality traits in a partner were associated with both participants' own perceptions of their actual partners' traits (*proximal* congruence) and with independent judges' ratings of the partners' traits (*distal* congruence).

Another dimension of individual variation relevant to relationship formation is adult attachment style. This concept, derived by Hazan and Shaver (1987) from John Bowlby's notion of mother-child attachment, is a classification of one's emotional attachment to a romantic partner into one of three styles, later expanded to four by Bartholomew (1990): secure, fearful, preoccupied, and dismissing. Subsequent work by Fraley and colleagues (2000) resulted in an instrument, the Experiences in Close Relationships (Revised) scale, or ECR-R, that can be scored on two independent dimensions, anxiety and avoidance. Bartholomew's four adult attachment styles represent the quadrants defined by the intersection of these dimensions, though the dimensional representation retains greater precision (Brennan et al. 1998). Fraley and colleagues (2006) later created a shorter version of the ECR-R, the Relationship Structures questionnaire, which is used in the present work.

Klohnen and Luo (2003) found evidence for assortment on adult attachment style. On the whole, most participants in their study found secure attachment most attractive in descriptions of hypothetical others. Beyond that, however, participants found more attractive the descriptions that matched their own attachment styles — i.e., assortment on attachment style was evident, at least

for these hypothetical matches. Some mismatched combinations were particularly aversive, such as avoidant participants with secure and preoccupied descriptions, and dismissing subjects with preoccupied descriptions (Klohnen and Luo 2003).

Work in this area is ongoing; some studies suggest that those characteristics that predict initial attraction might not predict relationship longevity or long-term satisfaction, and vice versa (Klohnen and Luo 2003; Watson et al. 2004). This phenomenon, which Halford and colleagues (1997) term the "short-term/long-term disjunction dilemma," suggests that prior research on initial attraction might not serve as a reliable guide to the important predictors of relationship outcomes.

Social exchange theory

Social exchange theory has been construed differently by different theorists, but one notion central to its various incarnations is reciprocal exchange among parties (Cropazano and Mitchell 2005). Early theorists described the way prestige, power, and compliance emerge from exchanges of informational and social goods (Blau 1964, Homans 1958). In the context of intimate relationships, social exchange and associated theories make several related contributions to the understanding of mate selection and relationship development. I will describe them briefly in this section, which owes much to the cogent overviews provided by Sprecher (1998) and van de Rijt and Macy (2006).

In terms of mate selection, social exchange theory posits that men and women trade their valuable characteristics for valuable characteristics — possibly the same ones, possibly different ones — in a mate. Traditional examples include the exchange of a man's wealth and social status for a woman's youth and beauty (see Rosenfeld 2005 for an overview) or his earning power for her domestic proficiency (Becker 1991). The system that emerges from many such exchanges is a "marriage market" (Ahuvia and Adelman 1992, Becker 1991) in which, Becker (1991) asserts, the value of an individual in the market as well as the marginal benefit or penalty associated with various characteristics can be modeled. In a marriage market, people will seek partners of similar value to their own, even if the source or nature of each partner's value differs. When the valued characteristics of partners are the same within a couple, the pattern of marriage produced is similar to what assortative mating would predict.

Knowing one's "worth" in the marriage market is important so that one knows what kind of mate one can "afford." The matching hypothesis (Walster et al. 1966) suggests that people pair with others of approximately equal value, or social desirability, in the marriage market, so that desirable people will prefer desirable partners, while undesirable people will prefer undesirable ones. In the context of mate preferences, empirical evidence for this phenomenon is limited; in many studies,

desirable people were preferred by everyone. On the other hand, studies of established couples do offer some support for the matching hypothesis, suggesting that perhaps the ambitions of less desirable people were constrained by the reality of whom they could attract in the marriage market (Sprecher 1998). A forthcoming paper (Shaw Taylor et al., under review) from our research group provides a critique of prior work in this area and offers some evidence to support the matching hypothesis in the initial selection of partners in an online dating environment, drawing on some of the same data presented in this work.

Social exchange theory also offers a perspective on the development and persistence of relationships. Blau (1964) describes the process of courtship as an escalating exchange of affection, gifts, and sexual acts in which the two parties may have different levels of investment (cf. Rusbult 1980), though a serious imbalance may lead to relationship dissolution. Such exchange continues, though the specifics may change, even in established relationships or marriages. Building on this approach, equity theory suggests that the most appealing and viable relationships are those in which the exchange is equitable, with neither party overbenefitted or underbenefitted, both of which may cause distress (Walster et al. 1973, Sprecher 1998).

Individual thresholds for satisfaction with a given partner may also vary. Thibaut and Kelley (1959) introduced the notion of an individual "comparison level," the quality of a relationship or level of relationship satisfaction that each person believes he or she merits. They also suggest that people consider the relative appeal of alternatives (the "comparison level for alternatives") in deciding whether to stay in a relationship or move to a new one (Thibaut and Kelley 1959). If the current relationship exceeds the comparison level, people will continue it. However, if the current relationship is below the comparison level and the alternatives are more attractive than the status quo, then under this model, a person will terminate the current relationship and seek a new one. One consequence of this in a marriage market is that even though someone who has low value in the market might want a highly valued mate, he or she could not be confident that the mate would remain in the relationship and pass up higher-valued alternatives.

Investment of time and resources in a particular partner may increase commitment and make people less likely to pursue alternatives than they would be if they had a lesser stake in the current relationship (Rusbult 1980). Furthermore, the feeling of love promotes commitment to a partner and may help people end their search for other options (Frank 1988). Emotional investment in an existing relationship and the potential pain of dissolution discourage those in relationships from leaving when someone better comes along, as long as the opportunity cost of staying is not too high. Indeed, Gonzaga and colleagues (2001) found an association between feelings of love and

relationship-protective behavior during periods of tension. Feelings of love have likewise been linked to discussion of commitment, and affiliation cues directed toward a partner have been associated with oxytocin, a neurotransmitter thought to play a role in pair bonding (Gonzaga et al. 2006).

2.1.3 Assessing relationship outcomes

Different online dating systems have different goals: some seek to match users for dating, some for marriage, some for sex. Most of the mainstream services, however, attempt to help their users initiate long-term relationships. Thus, if we wish to examine the success of relationships initiated through online dating, relationship outcomes measured some time after meeting constitutes a more useful metric of success than does initial attraction. Possible measures of relationship outcomes include relationship duration, relationship satisfaction, and perceived intimacy.

A number of validated scales exist for assessing relationship satisfaction, but for the present study, we chose Hendrick's (1988) Relationship Assessment Scale for its brevity, its single-factor consistency, and its high correlation with older, longer measures of relationship satisfaction (Hendrick 1988). Furthermore, whereas some scales tailor their questions to married couples, the RAS was designed for romantic relationships generally, making it a good fit for newly established couples.

Intimacy results from a process of reciprocal self-disclosure of "important self-relevant feelings and information" that leads to a sense of mutual approval and understanding (Clark and Reis 1988). Indeed, self-disclosure alone predicts marital satisfaction; Hansen and Schuldt (1984) found from self-reports that husbands' levels of self-disclosure predicted their own relationship satisfaction, and their wives' levels of self-disclosure predicted the relationship satisfaction of both the husbands and wives. However, husbands' self-disclosure did not predict wives' relationship satisfaction. Intimacy is one component of the "Eros" love style — the others are commitment and passion — that Hendrick and colleagues (1988) found to be associated with relationship satisfaction.

2.2 Computer-mediated communication

Researchers in interpersonal communication have studied computer-mediated communication from social-psychological, communication-theoretical, and organizational-behavioral perspectives for decades. Many of their theories seek to explain the differences between unmediated and various kinds of mediated communication in terms of both psychological phenomena and information-theoretic concerns. The earliest theories took a dim view of the potential for interper-

sonal, or social, rather than impersonal communication via computer-mediated systems, but two later frameworks due to Walther (1992, 1996) suggested that interpersonal affinity can emerge in computer-mediated communication under the right circumstances.

2.2.1 Media richness theory

Media richness theory (Daft and Lengel 1986) proposes several dimensions to describe qualities of a mediating technology. Of these, two are important in the present work: multiplicity of cues, or how many types of information can be conveyed, and immediacy of feedback, or how quickly the conveyance occurs. Face-to-face interaction is a rich medium — that is, it has tremendous multiplicity of cues (e.g., words, tone of voice, facial expression, gesture) and immediacy of feedback. By contrast, most computer-mediated communication systems are relatively lean, with mostly textual cues that may or may not be transmitted in real time. Some scholars have also described real-time systems as synchronous (e.g., the telephone) as compared to asynchronous (e.g., email). The original conception of media richness theory posited that people would choose rich media for more equivocal tasks — those with a great deal of ambiguity — and lean media for less equivocal tasks (Daft and Lengel 1986). Subsequent empirical work (e.g., Dennis and Kinney 1998) has failed to support this hypothesis, but the framework for describing communication media remains useful in describing how these media differ from face-to-face interaction and from each other.

2.2.2 Interpersonal communication in rich and lean media

The first theories of online interaction contended that communication in lean media was too impersonal for the formation of substantial relationships because of a dearth of social cues and, consequently, the absence of a sense of *social presence*, or "the degree of salience of the other person in the interaction and the consequent salience of the interpersonal relationships" (Short et al. 1976, p. 65). Short and colleagues (1976) claim that although the amount of social presence depends on the objective qualities of a medium, it is ultimately a subjective judgment of the medium by a particular user in a particular social context. Some early empirical research suggested that the absence of social cues could lead to differences in group decision-making processes, a reduction of status effects, and an increase in uninhibited behavior in online environments (Kiesler et al. 1984, Siegel et al. 1986). Some of these differences could be helpful if a system's purpose is to support simple communication and coordination processes. In particular, the reduction in the effect of participants' status on a task-related conversation could make it more egalitarian and thus perhaps improve task outcomes (Siegel et al. 1986, Dubrovsky et al. 1990).

Perspectives like these were collectively termed "cues-filtered-out" (CFO) approaches by Culnan and Markus (1987), who identified as the common assumption the notion that mediating communication technologies are necessarily deficient compared to face-to-face interaction in what signals they can convey and what social interactions they can support. This assumption may have preordained the pessimistic conclusions of this line of research, Lea and Spears (1995) argue:

> [T]he prevailing conceptualizations of relationships and relationship processes predetermine the conclusion that personal relationships will be difficult to obtain and maintain via telecommunications media. [...] However, it is important to draw the distinction between properties and processes that are simply the observed norm in relationships and those that are considered to be necessary prerequisites for relationships. (p. 212)

Culnan and Markus (1987) noted that little serious research had emerged from the obvious contrary assumption to CFO — that mediating technologies might convey signals that face-to-face communication cannot. This is even more salient today than in 1987, as technologies developed since the publication of Culnan and Markus's work incorporate physiological and environmental sensor data into communication interfaces (e.g., DiMicco et al. 2002), in addition to the multi-user and archival functionality of CMC systems that Culnan and Markus mention as features unavailable face-to-face.

In contrast to the CFO approaches, the Social Identity Model of Deindividuation Effects (SIDE) proposed that it is not the lack of social cues or social presence *per se* but rather the salience of a sense of group identity facilitated by the lack of individuating cues that governs our behavior toward others online (Lea and Spears 1991, reviewed and formalized in Reicher et al. 1995). Specifically, SIDE predicted more positive feelings toward others with whom one perceives a shared group identification and more negative feelings toward others with whom one sees no such commonality. Thus, uninhibited behavior online is explained as a process of in-group identification and out-group rejection, even if the groups are minimally defined, rather than as a simple consequence of anonymity.

Social Information Processing and hyperpersonal perspectives

Despite its potential benefits in certain situations, computer-mediated communication in this early work was treated as a poor cousin of the high-fidelity standard of face-to-face interaction. But in the 1990s, some researchers began to suggest that the relative paucity of social signals might not be as detrimental as the earlier work claimed (e.g., Walther 1992, Lea and Spears 1995, Parks and Floyd 1996). Two frameworks and a number of empirical studies by Walther and colleagues lend

support to this view. His Social Information Processing (SIP) perspective contends that people do build interpersonal ties and develop affinity for one another in computer-mediated contexts, but that these processes take longer than they would face-to-face simply because communication takes longer in most CMC systems than it does face-to-face (Walther 1992; Walther 1996). That is, the deficits earlier studies identified in computer-mediated communication relative to face-to-face were perhaps due not to a deficit in their fundamental capabilities to convey social information but rather to the limited rate at which this conveyance occurred. Walther and Burgoon (1992) showed that, as predicted, equivalent levels of affinity could develop in online and face-to-face interactions if the online groups were given enough time to do so. Moreover, as Walther (1996) notes, many of the earlier studies that found CMC socially impoverished did not allow for the slower development of affinity in mediated communication as compared to face-to-face interaction, instead constraining participants to the same amount of time for interaction in both media. More recently, Ellison and colleagues (2006) found support for SIP in the online dating environment, as users attempt to make inferences about potential dates based on the limited information in online dating profiles and text-based messaging exchanges.

Walther's notion of "hyperpersonal" interaction (Walther 1996) goes a step farther than SIP — it claims that people communicating in lean computer-mediated environments can form even higher levels of affinity for one another than they would face-to-face. This heightened affinity, Walther asserts, is due to a combination of factors: (1) Selective presentation of self, (2) idealized perception of others, and (3) a reciprocal feedback cycle that reinforces these self-presentations and interpersonal perceptions (Walther 1996). Selective self-presentation follows from the affordances of CMC to manage one's online persona, discussed in detail in the next section, and the tendency to perceive oneself favorably and present oneself favorably to others (Baumeister 1982, Taylor and Brown 1988), especially strangers (Tice et al. 1995). Idealized perceptions of others arise, following the SIDE model, from the perception of a shared group identity and from "an 'overattribution' process; [CMC partners] build stereotypical impressions of their partners without qualifying the strength of such impressions in light of the meager information" (Walther 1996, p. 18). In essence, observers will fill in the blanks of a person's impoverished but self-enhancing online self-presentation, and if they perceive commonality with the person, they will probably do so favorably. Moreover, a feedback cycle will amplify these effects, as each party's responses over time will reinforce and even magnify their exaggerated perceptions of each other (Walther 1996). Thus, people communicating online may reach greater levels of affinity for each other than they would if they were communicating face-to-face, where a wealth of additional signals moderate social judgments and provide checks on unrealistically positive or negative impressions. This acknowledgement of the

potential for extremely positive impressions, not just extremely negative ones, is what distinguishes the hyperpersonal perspective from earlier theories of mediated communication.

A study by Walther and colleagues (Walther et al. 2001) provided some empirical evidence to support hyperpersonal interaction in the context of face-to-face versus computer-mediated interaction among college students. Those participants who interacted over a long time without photos of each other developed the highest levels of affinity, whereas those who interacted for a short time without photos had the lowest levels of affinity. Photos tempered the extremes, leading to neither extremely high nor extremely low affinity. Other studies also show evidence of greater affinity in cue-constrained computer-mediated contexts as compared to face-to-face. McKenna et al. (2002) found that college students in a laboratory study liked each other better when they met online than when they met the same people in person, though the artifice involved in (deceptively) telling participants that the online person was not the same as the face-to-face person makes the findings only somewhat convincing. Indeed, a later study in which participants chatted either online or in person, but not both, did not replicate this finding — those in the face-to-face condition liked their partners better than did those in the online condition (Shaw and Mendelsohn 2005).

2.2.3 Self-presentation and interpersonal perception in CMC

Our impressions of other people are, of course, more nuanced than liking or disliking. Goffman (1957) describes the process of self-presentation as a performance. He distinguishes between the signals we "give" intentionally, as part of the deliberate performance, and those we "give off" unintentionally. Building on these notions and the language of signaling from biology, Donath (1999; forthcoming) portrays the online performance of self as a series of signals we attempt to give in order to convey a particular impression to others. Everything from the user name (or "handle") to the use of language or the choice of a photograph can signal certain qualities in online interaction; some signals "give" intended meaning while simultaneously "giving off" additional unintended information.

The communication medium governs the nature of the signals that can be sent and the speed with which they are transmitted. In a face-to-face context, signals given off by accident, perhaps through body language, a fleeting expression, or an unbidden change in intonation, provide a great deal of information about other people (e.g., Fridlund et al. 1987, or see Mehrabian 1972 for an overview). Online, however, especially in lean media with few channels of communication to manage and plenty of time to manage them, users can control their self-presentation to a much greater degree,

facilitating what Walther (1992) calls "selective self-presentation." In Goffman's terms, they can give what they intend and give off very little, though giving off nothing at all remains difficult.

Donath (1999) further classifies signals as "conventional" or "assessment." Assessment signals are unimpeachable indicators of a quality, difficult to fake and sometimes costly to produce. Lifting a heavy object is an assessment signal of strength. A conventional signal does not require the quality it indicates; it can be faked. Donath gives the example of wearing a "Gold's Gym" t-shirt — it does not necessarily mean that the wearer is strong, even if she seeks to give that impression (Donath 1999). Most signals in online interaction are conventional signals, given the control over self-presentation that CMC affords. Assessment signals do exist, though their evaluation requires care. An email address ending in "@whitehouse.gov" likely indicates a job in the upper echelon of the U.S. executive branch, but anyone can fake a return email address. Someone who receives one's email at a whitehouse.gov address *and* replies to the message from that address, however, has conveyed an assessment signal.

2.3 Online dating

Online dating systems constitute a genre of computer-mediated communication. Broadly speaking, Web-based online dating systems include the following (Fiore and Donath 2004):

- Personal profiles for each user, which include demographic and other fixed-choice responses, free-text responses to prompts, and, optionally, one or more photographs.
- Searching and/or matching mechanisms so that users can find potential dates from among the thousands of profiles on a typical system.
- Some means of private communication that permits users to contact potential dates within the closed online dating system without disclosing an email address, phone number, or identifying information. This usually means a private mail system, but it sometimes also includes instant messaging or the ability to send "winks" or some other contentless token of interest.
- Optionally, other forms of self-description: for example, the results of a personality test, or audio and video clips uploaded by the user.

2.3.1 Variations in online dating systems

Online dating systems vary substantially both in their general approaches and in their details of implementation. Following Fiore and Donath's (2004) taxonomy, the sites employ two approaches toward self-description: the *direct* approach, or explicit self-description, in which online daters fill out a profile-creation form about themselves and their preferences for a mate; and the *indirect* approach, or implicit self-description, in which daters demonstrate their own qualities and mate preferences through tests or activities to assess, for example, personality traits or ideal physical characteristics of a partner.

Similarly, sites vary in their mechanisms for finding potential dates. All provide at least one of the following mechanisms (Fiore and Donath 2004):

- **Searching:** System presents profiles which meet precise requirements specified through a search form. Examples: Match.com, Yahoo! Personals
- **Matching:** System suggests compatible profiles based on an algorithm, the precise mechanism of which is unspecified. Examples: eHarmony, Chemistry.com
- **Serendipity:** Random presentation of profiles, sometimes selected from a constrained pool of likely candidates, but with an element of chance. Examples: Hotornot.com

Sites also vary in the amount of information provided about potential dates beyond the profile. Most indicate how recently a user has logged into the site, which allows others to avoid writing to people who have not used the system in a long time. Some sites — notably the free OKCupid — provide additional information, including how often a profile's owner responds to messages, how recently others have contacted him or her, and how well one matches his or her stated preferences, all of which allow users to estimate their likelihood of getting a response before they send a message.

2.3.2 Self-presentation and truth in online dating

In the framework of media richness, most online dating systems (and certainly the one studied in this work) are relatively lean. Users present themselves through text, fixed-choice responses, and photographs in their profiles, which are typically viewable by any member of the dating site and sometimes by anyone on the Internet. They also engage in text-based private messaging with potential dates, using an interface much like web-based email. Some dating sites offer voice or video chat as well, but these are not the primary communication channels on most sites, likely

due to both technical requirements and the need for both parties to be online in a medium that is otherwise asynchronous.

Unlike in many computer-mediated communication systems, where interactions begin online and stay there, online dating users typically engage in mediated communication with the intention of meeting offline and, perhaps, establishing a lasting relationship. This requires an approach to self-presentation that takes both the online and offline modalities into account. In a lean medium dominated by Donath's (1999) conventional signals, it is easy to present oneself online very differently from how one appears face to face. However, an online dating user who misrepresents himself substantially will find his deception uncovered on the first date. Online dating users, then, walk a fine line between self-enhancement and honest self-presentation. Indeed, Gibbs and colleagues (2006) found in a survey of Match.com users that honesty was negatively associated with their perceptions of successfulness in self-presentation. Even so, most respondents claimed they had not misrepresented themselves on purpose in their profiles, although at the same time they felt that others users' representations were not accurate (Gibbs et al. 2006).

To investigate whether online dating users were lying about basic personal information, Hancock and colleagues (2007) measured and weighed online dating users, recorded their ages from their driver's licenses, and compared these quantities with those given in their online dating profiles. They found small but significant deviations from the truth about height and weight in directions that suggest intent — men slightly over-reported their height on average, and women slightly under-reported their weight. However, most of these discrepancies were small enough that to call them "lies" would be an overstatement. Perhaps they represent presentation of the ideal rather than the actual self, a form of wishful thinking that Ellison and colleagues (2006) documented in their interviews with online dating users, or perhaps they are simply a calculated risk. Hitsch and colleagues (forthcoming) took a different approach to the question of veracity, comparing characteristics like height and weight in their sample of online daters with national averages. They found minor differences but no systematic discrepancies.

The perception that deception is rampant in online dating, which some users claim both in research studies and in popular press coverage, might stem not from deception but rather from the effects of mediation. Some misrepresentation is certainly possible, and somewhat self-enhancing presentation appears common. However, Walther's (1992) theory of Social Information Processing holds that individuals interacting online readily make inferences about others even from scant details gleaned from informationally impoverished channels. If these inferences lead to incorrect

impressions, the people behind the profiles might appear to have lied when their true characteristics are found to contradict the impressions formed online.

2.3.3 Attractiveness in online dating

Only a few studies so far have considered how users judge attractiveness online generally or in online dating in particular. Ellison and colleagues (2006) describe the strategies employed by online dating users to interpret the self-presentations of others. Primarily, the participants they interviewed used heuristics to make substantial inferences from small cues, lending support to Walther's (1992) theory of Social Information Processing. For example, one woman felt that people who were sitting down in their online dating profile photos were trying to disguise that they were overweight. Perhaps needless to say, in her own photo, she was standing (Ellison et al. 2006).

Norton and colleagues (2007) found in a lab study that even though online daters believed they would like people better when they had more information about them, in fact more information led to less liking, perhaps because it helped users better to assess incompatibility. If this is the case, when they are presented with a highly compatible person, more information should allow them to be more certain that they will like him or her. Thus, an online dating profile with a lot of information might attract fewer — but potentially more compatible — suitors.

Fiore and Donath (2005) used the number of messages online daters received as a measure of attractiveness and found that men received more messages when they were older, more educated, and had higher levels of self-reported attractiveness (which might represent something more like self-esteem). Women received more messages when they did not describe themselves as "heavy," had higher levels of self-reported attractiveness, and posted a photo on their profiles. These results roughly correspond to what we would expect from past social psychological research.

Photos proved dominant in a study of the relative power of the three main components of an online dating profile — photograph, free-response text, and fixed-choice categorical descriptors such as demographics — to predict the profile's overall attractiveness (Fiore et al. 2008). The attractiveness of the free-response text, however, was also significantly associated with whole-profile attractiveness. Furthermore, men's profiles were seen as more attractive when their photos were rated as more genuine and trustworthy and less warm and kind; for women's profiles, greater overall attractiveness was associated with appearing to have higher self-esteem and to be more feminine and less masculine in the photo.

2.3.4 Searching and messaging behavior in online dating

The archival nature of computer-mediated communication systems makes online dating sites a rich source of behavioral data for scholars of online interaction and intimate relationships. While profiles, themselves a detailed source of information, constitute a public presentation of self, searching and messaging logs can yield insight into true preferences that online daters might not wish to reveal publicly. Anonymized versions of these records can explicate patterns of behavior and compare them with stated preferences without compromising privacy.

Hitsch and colleagues (forthcoming) express concern that strategic behavior (e.g., not contacting someone who is appealing because s/he seems too attractive to be likely to respond) might bias estimates of true preferences from this behavioral data. This is a reasonable concern, but it masks a semantic issue: is "true preference" what people consider ultimately attractive (e.g., a supermodel) or simply what they want given the constraints of reality (i.e., they will probably not date a supermodel)? I consider the latter to be more salient. In any case, Hitsch and colleagues (forthcoming) did not find the strategic behavior they feared in the online dating site they studied, though Shaw Taylor and colleagues (under review) found some evidence that online daters temper their ambitions for attractive partners based on their own self-worth.

In an analysis of the same online dating site used in the present work, my colleagues and I found that men initiated contact with others more often than women — a median of 1 contact per day versus .875 — and received replies to their missives 15.9% of the time, as compared to 26.4% of the time for women (Fiore, Shaw Taylor, Zhong et al. 2010). Moreover, women specified more characteristics of their ideal partners in their profiles than did men. Both of these findings are consistent with the notion that women are more selective than men. In keeping with the predictions of evolutionary psychology, men sought and contacted women somewhat younger than themselves, while women of childbearing age sought men older than themselves.

On many dimensions, online daters contact people similar to themselves, providing evidence of positive assortment. Fiore and Donath (2005) found better-than-chance levels of similarity among communicating pairs of online daters on every dimension they analyzed, including educational level, race, religion, smoking and drinking habits, marital history, and whether the parties wanted children. Hitsch and colleagues (forthcoming) found evidence of assortment on many of the same dimensions as well as age, height, and political views. They also present an important theoretical distinction between *vertical attributes*, those that are generally agreed to be appealing, and *horizontal attributes*, those whose appeal depends on the traits of the observer (Hitsch et al. forthcoming).

Preferences regarding race present a particular point of interest. A long history in the United States of disfavor toward interracial dating, especially between blacks and whites (Mendelsohn et al., in preparation), as well as the empirical evidence for positive assortment on race suggest that online daters will seek partners of the same race as themselves. Indeed, older and female online daters in particular express strong same-race preferences in their profiles (Fiore, Shaw Taylor, Mendelsohn, and Cheshire 2010). However, across the age spectrum and both sexes, they actually contacted others of the same race at a much higher rate than their own stated preferences or chance would predict given the distribution of races in the dating site's population. By contrast, this pattern was not evident for religion — online daters in fact contacted others of the same religion relatively less often than they said they would and at about the rate chance would predict (Fiore, Shaw Taylor, Mendelsohn, and Cheshire 2010). Hitsch and colleagues (forthcoming) found similar same-race preferences as well as evidence that women who declare no preference for race nonetheless exhibit such a preference in whom they contact. Likewise, Mendelsohn and colleagues (in preparation) report that both men and women who say they are open to dating someone of any race still contact people of their own race disproportionately.

2.3.5 Relationship outcomes and matching models

Little published research has carefully evaluated how well online dating sites support the development of new romantic relationships as compared to offline venues for relationship formation. Many sites make marketing claims, but to date none has shown that couples who meet through online dating more successfully form relationships or have more satisfying partnerships than equivalent couples who met offline. The matching functionality of online dating sites is an important part of this evaluation — these algorithms are designed to identify compatible partners for romantic relationships. Again, however, no site has shown rigorous, comparative research that validates the effectiveness of their matching model, nor is it clear from the social psychological literature, which tends to focus on established couples, whether it is possible to identify such matches at all based on individual qualities or qualities of the dyad before they have interacted.

eHarmony is the dating site in the U.S. that makes strong claims about the ability of its matching model to facilitate happy marriages. However, the only publicly presented validation of the model (Carter and Snow 2004), which showed that couples who married after meeting on eHarmony were more satisfied than those who met offline, suffers from a methodological flaw that calls its conclusions into question. Specifically, the eHarmony sample dated for an average of three months before marrying and had been married for an average of six months at the time of the study, whereas the offline sample had dated for an average of more than three years before marrying and

had been married for two years on average at the time of the study. The authors indicate that they adjusted for this difference statistically, but there is no evidence that the effect of time on feelings of love is linear and additive, so linear adjustment is unlikely to have been appropriate.

2.3.6 Market mind-set

The "marriage market" model is salient not just to scholars but also to users of online dating sites. Heino and colleagues (2010) found in interviews with online daters that they described the process in market-oriented terms: the site as a "catalog," the profile as a "résumé," the advertising-like self-promotion, the quality of responses as an indicator of their own worth. They navigated the site like a market, too, searching the large "inventory" of potential dates for those with desired characteristics and disregarding those with undesirable ones. Participants noted the downsides, too, of this approach: they reported that it lacks the spontaneity and "magic" of face-to-face meetings and promotes a "'find my flaw' mentality" (Heino et al. 2010).

Ahuvia and Adelman (1993) showed that market metaphors were prevalent even before online dating. Their interviews with members of an offline dating service also spoke about the "features" of potential mates and the need to advertise or promote oneself. Furthermore, they used the language of the market to describe, for example, the scarceness of eligible singles or the effects of their pickiness on the size of their pool of candidates (Ahuvia and Adelman 1993). However, interviewees also indicated discomfort with the objectivity of the market metaphor in contrast to the subjectivity and affective warmth of romantic love.

The sheer volume of choice in a crowded market for goods has been shown to have unintended consequences. Iyengar and Lepper (2000) found that shoppers were less satisfied with their choice of jam in the supermarket and were less likely to buy any jam at all when they were presented with 24 flavors than when presented with six. The additional choices force shoppers to make finer distinctions among the products and to be more aware of other good possibilities they passed over in making their decision. Such research has not been extended to online dating specifically, but it suggests the possibility that the overwhelming number of potential dates might lower satisfaction with whomever a user eventually chooses.

3 Research questions and methodology

This work seeks to explicate by means of a longitudinal survey the process of romantic relationship formation among individuals who meet through an online dating service. This chapter presents the research questions and hypotheses and describes the methodology by which the survey was conducted.

3.1 Research questions and hypotheses

In this section, I state the guiding research questions, indicate specific hypotheses that follow from them, and give a brief rationale for each. The first research question addresses the effects of computer-mediated communication on interpersonal perception and attraction:

> **RQ1:** How do interpersonal perceptions change as online daters make the transition from interacting online to interacting face-to-face?

The second research question addresses the connection between early interactions and relationship outcomes:

> **RQ2:** What characteristics of dyads and their initial online and offline perceptions of each other predict relationship longevity and satisfaction?

In the following sub-sections, I will explicate specific hypotheses following from these two research questions.

3.1.1 Hypotheses arising from Research Question 1

Walther's (1996) discussion of hyperpersonal interaction suggests that interpersonal perceptions may be more favorable when interacting with a person through a cue-constrained mediated channel than they would be when interacting the same person face-to-face. This suggests that the same person will appear less attractive face-to-face than online, though the hyperpersonal framework does not address the effects of sequential interaction in different media (online and then offline, in this case). I hypothesize the following:

H1a: Participants will rate their dates less attractive on average after meeting face-to-face for the first time than before.

The development of affinity can take more time in leaner media (Walther 1992), which include most CMC environments, than in richer media like face-to-face interaction, though the theory of hyperpersonal interaction (Walther 1996) posits that with time affinity and attraction in a mediated context can reach higher levels than they would face-to-face. The more a dyad interacts online, the more heightened their affinity for each other might be, hence:

H1b: The more messages exchanged online prior to meeting face-to-face for the first time, the more attraction will decline after the meeting occurs.

One explanation for the hyperpersonal effect is that, since information about an interactional partner is sparser and slower to arrive, a combination of perceptual and interactional processes may promote more extremely positive or negative impressions of a person than would be formed face-to-face (Walther 1996). In the context of online dating, in which information is incomplete or at least slower to gather and favorable self-presentation and even self-promotion would seem desirable, it makes sense that these impressions would tend toward the excessively positive rather than the overly negative.

Relatedly, online dating users may over-estimate how much they have in common with potential dates before they meet them in person. In one study, participants presented with lists of traits describing a potential dating partner rated these partners as less attractive on average the more traits were given (Norton et al. 2007). The researchers suggest that more information allowed participants better to assess dissimilarity, which led to less liking. In online dating, users might likewise overestimate their date's similarity to themselves before meeting in person, so I hypothesize:

H2: Levels of perceived commonality will be lower on average after face-to-face meeting than before.

Similarly, we might expect online daters to perceive potential partners' personalities as more like the personality of the user's ideal partner than they actually are. Klohnen and Mendelsohn (1998) found that even among established couples, each partner's perception of the other's personality traits was skewed toward his or her own ideal-partner personality traits. If this is true for established couples, it is even more likely among potential partners with limited information about each other. Thus, I make two predictions, one general and one specific to personality traits:

H3a: Average ratings of how close a participant's date is to his/her ideal for a partner will be lower after face-to-face meeting than before.

H3b: The correlation between a participant's ideal personality traits in a partner and his/her perception of his/her date's personality traits will be lower after face-to-face meeting than before.

3.1.2 Hypotheses arising from Research Question 2

Although not all predictors of initial attraction are likely to predict long-term relationship outcomes, I hypothesize that initial face-to-face attraction itself will predict relationship success, while the same judgment before meeting in person will not be strongly predictive:

H4: Higher levels of attraction after meeting face-to-face for the first time will predict (a) longer relationship duration, (b) greater relationship satisfaction 3 months after the first date, and (c) greater intimacy 3 months after the first date. However, levels of attraction before meeting face-to-face will not be associated with these outcomes.

Since Zentner (2005) found that similarity between the personality traits of one member of a couple and the desired ideal-partner traits of the other predicted relationship satisfaction, I hypothesize that this congruence will improve relationship outcomes. Due to the hypothesized discrepancy between perceptions formed online and face-to-face reality, I also predict that this congruence as assessed before meeting in person will *not* be associated with relationship outcomes:

H5: The correlation between participants' ideal-partner personality traits and their perceptions of their dates' actual personality traits after meeting face-to-face for the first time will predict (a) the length of relationship, (b) relationship satisfaction 3 months after the first date, and (c) intimacy 3 months after the first date. However, ideal-actual personality trait correlation before meeting face-to-face will not be associated with these outcomes.

In both married and dating relationships, higher levels of extraversion, conscientiousness, and agreeableness and lower levels of neuroticism have been shown to be associated with greater relationship satisfaction (Watson et al. 2000). Neuroticism appears to be a particularly potent predictor (Karney and Bradbury 1995). Thus:

H6a: Higher ratings by participants, both pre-date and post-date, of their dates' conscientiousness, agreeableness, extraversion, and positive emotionality (i.e., reverse-scored neu-

roticism) will predict (a) a longer relationship, (b) greater relationship satisfaction 3 months after the first date, and (c) greater intimacy 3 months after the first date.

H6b: Higher levels of conscientiousness, agreeableness, extraversion, and positive emotionality in participants' self-reports will predict (a) a longer relationship, (b) greater relationship satisfaction 3 months after the first date, and (c) greater intimacy 3 months after the first date.

3.2 Research methodology

This study comprises a longitudinal survey which captures participants' impressions of their dates before and after they meet in person and continues to follow the development of relationships that emerge from the first dates, for up to three months or until the relationship is dissolved. Furthermore, profile data and messaging statistics for participants and their dates permit relationships to be identified between self-description, communication behavior, and survey responses.

Although the longitudinal design of this study adds substantial complexity to data collection and analysis in comparison to a simple cross-sectional approach, it offers in return substantial benefits in the diversity of effects that it can capture and the power of the statistical inference that it enables. In particular, this design facilitates the study of relationship formation as a process, with the potential to examine within-person changes in perceptions as a relationship develops, as opposed to a cross-sectional approach, which would compare perceptions among distinct groups of participants at different points in the process. The study of relationships demands a longitudinal approach that focuses on couples, not just individuals (Klohnen and Mendelsohn 1998, Niehius et al. 2006). In this work, I seek to examine individuals' perceptions over time and the connection with qualities of their dyadic partners.

I also chose to study real online dating users in a real online dating context. We and others have conducted laboratory studies to examine parts of the online dating process, but it is hard to obtain reasonable ecological validity under such circumstances, without participants who are intrinsically motivated to find romantic partners interacting with others with the same goals. The sheer scale of most online dating systems, with thousands or millions of profiles, makes it prohibitively difficult to create a reasonable approximation of a real-world online dating system in the lab, much less one with the verisimilitude to give us confidence that our results would speak to behavior in a more realistic context. The real social environment provided by a working online dating site ensures

ecological validity, though at the same time the challenges in recruiting a representative sample of participants from the site's users may make external validity difficult to achieve.

3.2.1 Target population

For this study, my colleagues and I secured the cooperation of a major online dating service in the United States, one with millions of unique visitors per month (Madden and Lenhart 2006). We recruited our sample from the pool of active users, which we defined as having sent at least one message to another user in the two months prior to the recruitment period. Since a paid subscription is required to send messages on the site, our sampling frame consisted mostly of paying users. Moreover, since users had to have posted profiles in order to send and receive messages, all users targeted for recruitment had personal profiles on the site, at least when recruitment began, though they were free to remove them at any time. (One preliminary wave of data collection used broader criteria and was open to non-paying users as well, but all of those who reported on the behaviors central to this study were necessarily paying users, as they had to have the ability to send messages in order to correspond with a potential date.)

3.2.2 Sampling

Initially, my colleagues and I sought to recruit both members of communicating dyads who were planning to meet in person so that we could simultaneously assess their perceptions of each other as their relationship progressed. However, the individual response rate was low enough that we did not succeed in recruiting both members of any dyad.

To recruit both members of a communicating dyad is challenging in a context, such as online surveys, known to have a low individual-wise response rate compared to traditional postal-mail recruitment (Kaplowitz et al. 2004, Andrews et al. 2003). Most dyads who communicate through online dating will likely not meet in person, and most who meet in person will probably not form long-term relationships. Since we sought to include in the study hundreds or thousands of dyads who did establish relationships, we first thought to start with a very large random sample. However, a random sample of individuals, even a large one, is not optimal for this purpose, since it might capture some intact dyads but also include only one person or the other from many more communicating pairs. A random sample of dyads, on the other hand, would be appropriate, but in the present study dyads are not established couples, but rather people who have just begun communicating, so they will not respond as a unit.

With these concerns in mind, the primary approach we chose was non-random geographic sampling. Specifically, we targeted for recruitment all users from more than 40 geographic areas throughout the United States, including major metropolitan regions and larger swaths encompassing smaller cities and towns, based on the location users indicated in their profiles. Since most online dating contacts are local, this approach seemed likely to maximize the potential to recruit both members of communicating dyads.

Even with this approach, though, we did not collect survey responses from both members of any communicating dyads about each other in the initial waves of data collection. We speculated that participants might be communicating with people outside their local area more than we anticipated, or that their dyadic partners were not joining the study at a high enough rate. Thus, for later waves, which comprised the majority of participants recruited, we added a snowball-sampling approach (Goodman 1961). When participants completed a questionnaire telling us about someone they were communicating with and planning to meet, we sent them an email with an invitation to the study and asked them to pass it on to their dyadic partner if they felt comfortable doing so. Each invitation contained a link with a unique, randomly generated code so that we could identify to whom it had been issued. We believed that this snowball-sampling approach would help to induce the dyadic partners of existing participants to join the study. However, this approach too failed to yield any pairs of participants who dated each other and reported to us about it.

3.2.3 Recruitment, incentives, and reminders

We recruited participants through "pop-over" advertisements that appeared on targeted users' screens when they visited the dating site. These ads (Figure C1, Appendix C) were superimposed on whatever content the user was viewing. Users who clicked an ad were presented with an informed consent page, and if they agreed to participate, they were taken immediately to the first questionnaire.

Recruitment proceeded in two phases: a pilot phase followed by the main data collection. The pilot phase, in 2008, used an advertisement that read: "Online dating study: Share your thoughts and experiences," with buttons labeled "Join the study," which took users to an informed consent page with frequently asked questions and answers, "No, thanks," which closed the advertisement. Participants in this phase received the intake questionnaire, Q1, followed by the pre-date questionnaire, Q2, and the post-date questionnaire, Q3, if they indicated they had plans to meet someone face-to-face. Toward the end of their participation in the study, we sent them the retrospective questionnaire along with a $5 gift card as a token of appreciation. After observing the response

rates from the pilot phase, we designed and implemented the six-week cycle of questionnaires described previously.

To provide an incentive for online dating users to participate in the study, we offered Amazon.com electronic gift cards to some participants. In the pilot phase, we sent all participants a $5 gift card at the conclusion of their participation and also raffled off five $100 gift cards. In the main phase, we randomly assigned participants to receive different denominations of gift cards, or no monetary incentive, as part of a related study on the effect of incentives on online survey response rates. We also set the payment schedule so that participants would receive some of the incentive at the beginning of the study. Some participants were offered a total of $60 in gift cards: $30 upon completing the first questionnaire, and two payments of $15 each if they continued participating for three weeks and six weeks. Others were offered $15 in gift cards, consisting of $5 at first followed by two $5 payments at three weeks and six weeks. The rest were offered no monetary incentive.

As part of the study of incentives and participation rates, we also randomly assigned participants in the main phase to be shown different ads. Some participants saw ads that made no mention of money (even though some would learn later that they would receive gift cards), while others saw ads promising a gift card or ads that mentioned the $15 or $60 amounts specifically. The "no-money" ad read: "Online dating study: Contribute to relationship research, share your thoughts and experiences." The "gift card" ad read: "Online dating study: Contribute to relationship research, share your experiences, get a gift card." The others were the same except that they ended with "get up to $15" or "get up to $60." A button labeled "Tell me more" took users to the informed consent page, while the button labeled "No, thanks" closed the advertisement.

We employed all legitimate combinations of payment and advertisement — that is, those in which the payment was at least as much as promised in the ad (Table 3.1). We did not offer illegitimate

Table 3.1. Advertisement-incentive combinations (main phase of recruitment)

		GIFT CARDS OFFERED		
		None	$15	$60
AD SHOWN	No money	✓	✓	✓
	Gift card	–	✓	✓
	$15	–	✓	✓
	$60	–	–	✓

combinations, such as showing an ad promising $15 but then offering no money when the user clicked through to the study site. Offering $60 in gift cards to users who clicked an ad promising $15 was an administrative mistake, but this combination turned out to be useful as an example of a happy surprise — giving participants more than they thought they would receive (see Appendix D).

If users agreed to the consent statement, they provided an email address at which we could contact them. We sent a welcome email when they joined as well as periodic emails informing them when new questionnaires were available and reminding them if they had not completed a pending questionnaire after a few days. No matter the condition under which participants in the main phase were recruited, they all progressed through the questionnaires according to the same rules, described in the following section.

3.2.4 Survey design

We employed a longitudinal survey design for this study with a variable number of questionnaires, depending on whether and when participants met someone through the dating site during the study and how the relationship progressed, giving them multiple opportunities to tell us about potential dates and their outcomes. Some questionnaires were assigned to a given participant more than once over the course of the study. We developed this design after completing the pilot phase of the study in 2008, in which participants had only one chance to report on a potential date whom they were planning to meet in person. Few participants did so, probably because they did not receive our questionnaire during the short window of time between making contact online and meeting a date face-to-face. As a result, we designed the main phase of the study to maximize the number of opportunities participants had to report their perceptions of their dates both before and after meeting in person.

The primary portion of the final study design comprised six weeks, beginning whenever the participant joined the study. Participants received a new questionnaire about once a week, depending on their previous responses. If their responses indicated that they had begun dating someone whom they met on the dating site, they entered a longitudinal follow-up phase with up to three months of monthly questionnaires about the ongoing relationship. A state system with transition rules automatically assigned new questionnaires as appropriate based on each participant's responses. Table 3.2 lists the questionnaires and briefly summarizes the contents of each one. Appendix A provides a full listing of the contents of the questionnaires, and Figure C2 in Appendix C provides a graphical overview of the possible sequences of questionnaires, which I describe in this section.

Table 3.2. Questionnaires used in the study

QUESTIONNAIRE	DESCRIPTION
Intake (Q1)	Baseline psychometric information: personality traits, levels of trust and caution, adult attachment style, experience with online dating.
Pre-date (Q2)	Potential date, before face-to-face meeting: perceptions of the potential date and his/her attractiveness on many dimensions before meeting face to face.
Post-date (Q3)	After face-to-face meeting: how the first date went with the person from Q2 and perceptions/attractiveness of the person after meeting face-to-face.
Longitudinal (QL)	If participant forms a relationship with person from Q2 and Q3, how is the relationship progressing? Scales to assess satisfaction and intimacy.
Retrospective (QR)	A retrospective version of Q2 and Q3 together: Asks participant to recall how s/he thought of a previous date before and after meeting him/her face to face.

After clicking the ad and giving informed consent, each participant was presented with an intake questionnaire Q1, "Your dating background," with questions about dating history, experience with online dating, and validated instruments for assessing the Big Five personality traits (openness, conscientiousness, extraversion, agreeableness, and neuroticism) in oneself and one's ideal partner with the Ten-Item Personality Inventory (Gosling et al. 2003), adult attachment style with the Relationship Structures instrument (Fraley et al. 2006), dispositional trust and caution (Yamagishi and Cook 1993), and self-esteem with the Single-Item Self-Esteem scale (Robins et al. 2001).

Next, after four days, we assigned a "pre-date" questionnaire (Q2) asking participants whether they were planning to go on a date with somebody with whom they were communicating via the dating site. For participants who reported having a candidate for a date, we asked a series of questions about how they perceived their dates' personality traits (again using the Ten-Item Personality Inventory), attractiveness on a number of dimensions, suitability for a casual or serious relationship, and level of reciprocal romantic interest, i.e., how participants thought their potential dates saw them. The responses to Q2 provided information about how participants perceived their dates based on interactions through computer-mediated channels. (Those participants whose responses indicated that they had already met their dates in person were immediately diverted to a post-date or retrospective questionnaire.) We also asked participants when they planned to meet their dates in person. Based on these responses, we sent each of them a post-date follow-up questionnaire

(Q3) after their anticipated meeting date to assess their perceptions of their dates on these same dimensions after the initial face-to-face meeting. Participants who had not yet met their dates in person by the time they anticipated were asked if they still had future plans. Those who did were rescheduled to take the post-date questionnaire at a later time, while those who did not were subsequently assigned a new pre-date questionnaire so that they could report on a different potential date if they had one in mind. This cycle continued throughout the six-week primary phase of the study for each participant.

Finally, we examined relationship outcomes longitudinally for those dyads who continued to date. Every four weeks, starting two weeks after the scheduled first date, we sent a questionnaire (QL) to assess the continuing development of a relationship, if any. Each longitudinal questionnaire began by asking participants whether they were still dating the person they have reported on previously. If they were still dating, we used validated instruments to assess relationship satisfaction (Hendrick's [1988] Relationship Assessment Scale), intimacy (Prager and Buhrmester 1998), and interdependence (Aron and colleagues' [1992] graphical Inclusion of Other in the Self Scale). If they were not still dating, we asked them to explain briefly why it did not work out. We sent QLs every four weeks as long as the study was running, so that we received up to three months' of reports following the first date.

Those participants who were not in a relationship at the end of their six-week study period were asked to complete a retrospective questionnaire (QR) about the person they had met most recently through the dating site. This questionnaire contained all of the questions from the pre-date and post-date questionnaires (Q2 and Q3), with the tense adjusted as appropriate, as well as a few additional questions about the subsequent outcome of the first date. Those participants who had never met anyone through the dating site were instead asked about their satisfaction with the online dating process and their own self-presentational success.

3.2.5 Survey software

To conduct this study, I developed custom web-based survey software that integrated with the online dating site's in-house authentication and user information databases. It ran on a server provided by the dating site and had a domain name associated with the company, which provided name recognition for participants visiting the web site as well as the data security afforded by the company's secure data center and server configuration.

The software comprised a PHP-based web front-end and a MySQL database back-end. Questionnaires were specified in the MySQL database and presented by a PHP application that could

display several types of questions: free-response, multiple-choice (both single-response and multiple-response), Likert-type scales, and matrices of many Likert-type scales. I implemented conditional branching, so that which questions were displayed could be contingent on responses provided earlier in the questionnaire or even on previous questionnaires. The software used the online dating site's standard user names and passwords for authentication, so participants did not have to create a new account or remember a different password to access the study site. The system also allowed users to change the email address we used to contact them at any time and to review the gift cards they had received, if any.

A state system allowed us to keep track of participants' progress through the study, assign different questionnaires depending on their answers to previous questions, and employ variable waiting periods between questionnaires based on both pre-set intervals and participants' responses. A daily state-updating script moved participants through the study, automatically managing questionnaire assignments, response evaluation, and waiting periods on an individual basis. The state-updating script also sent participants email notifications of new questionnaires and reminders at pre-set intervals if they had not completed previously assigned questionnaires. Up to three reminders were sent over three weeks for an uncompleted questionnaire. Finally, the state-updating script was modified to enable the snowball-sampling recruitment procedure described previously. When participants completed a pre-date questionnaire about someone they intended to meet, the system sent them an email with a unique link that they could, if they were willing, pass along to their date with an invitation to join the study. If the date joined the study through the link, the system annotated his or her record in the database with the anonymous ID number of the participant who recruited him/her.

To facilitate the analysis of both participants and non-responders, I also created a data warehouse in MySQL to store and aggregate the characteristics of users from their online dating profiles and the exchanges of private messages among users of the site. Only the metadata from the messages was collected, including sender, recipient, and message date; the message contents were not examined or archived. The system captured profiles and communication records for approximately 9 months in 2008 and one year from February 2009 to February 2010, including more than one million profiles and tens of millions of messages exchanged. Message counts were aggregated by sender and recipient for each distinct dyad, producing a record of how many distinct others each user communicated with, who initiated the exchange, and how many messages each party sent. Profile data was gathered in batches every few weeks using the profile identifiers in the communication logs. Because of the batch collection schedule and the transience of some profiles' availability due to the dating site's approval process and attrition from the site, 19.7% of the profiles that appeared

in the log files could not be collected. However, the unavailability of a profile due to technical and procedural considerations is unlikely to be systematically associated with any of the qualities under study in the present work.

3.2.6 Matching responses with communication and profile data

Participants' dates were not uniquely identified by the information participants provided about them, which consisted of only a first name. Since messaging statistics and demographics about the dates is useful for certain analyses, we sought to link the people mentioned by participants in Q2 and QR with their records in the data warehouse. To accomplish this, I built an administrative interface to match records from participants' communication histories with the first names they provided in the questionnaires. The interface listed first names of the people with whom each participant communicated and the dates of first and last communication with each correspondent. Members of our research team used this information to find the most plausible matches with the dates reported in Q2 and QR, given the first names and dates of communication relative to the names and dates of first meetings indicated in the questionnaire responses. Because not all profiles were available and not all participants could recall or chose to give a first name for their date, only some of the people mentioned in the questionnaires could be linked to their communication and profile records. Moreover, in some cases the ambiguity of a common first name made it impossible to disambiguate between potential matches (e.g., instances of communication with two people named "John" within a few days of each other). We simply marked such cases as unmatchable and did not use them for the relevant analyses.

4 Results

This chapter presents the results of the survey of online dating users. It begins with a description of the number of participants recruited and the participation rates achieved with different monetary incentives. Next, the demographics of the participants are described and compared to the users of the online dating site as a whole. Finally, the bulk of the chapter presents analyses of changes in perceptions before and after participants met their dates in person (Research Question 1) and longer-term relationship outcomes as predicted by initial perceptions (Research Question 2).

4.1 Recruitment and incentives

The pilot phase of recruitment, conducted in 2008, used the same advertisement for all recruits, as discussed in Chapter 3. In this phase, 996 participants (51% female) joined the study and completed at least the first questionnaire.

In the main phase, conducted in 2009, we employed four different recruitment advertisements (pictured in Figure C1, Appendix C) and three different monetary incentive conditions as part of a related study of the effect of incentives on online survey response rates (detailed in Appendix D). We also tracked the rates at which recruits in each of these conditions clicked the ads and joined the study. In the second phase, ads were shown to approximately 259,000 users of the online dating site, and 2.1% of these users (5,478) clicked through to the informed consent page. The click rates differed significantly among the four ads, $\chi^2_3 = 57.1$, $p < .001$, as indicated in the following table.

Table 4.1. Click rate by advertisement

Ad name	Ads shown	Clicks	Click rate
No money	68,803	1,224	1.78%
Gift card	133,705	2,957	2.21%
$15	44,828	989	2.21%
$60	12,017	308	2.56%
Total	**259,353**	**5,478**	**2.11%**

The largest pairwise difference occurred between the $60 ad and the ad that did not mention money, $\chi^2_1 = 33.4$, $p < .001$. The $60 ad also garnered a significantly higher click rate than the $15 ad, $\chi^2_1 = 5.3$, $p < .05$, and the "gift card" ad that did not mention a specific amount of money, χ^2_1

= 6.1, $p < .05$. The click rates for the gift-card ad and the $15 ad did not differ significantly from each other, but both were higher than the rate for the ad that did not mention money ($\chi^2_1 = 25.7$, $p < .001$ for the $15 ad; $\chi^2_1 = 41.8$, $p < .001$ for the gift-card ad).

After clicking an ad, users were presented with the informed consent page. If they consented to join in the study, they were invited to begin the first questionnaire immediately. Users in different incentive conditions participated in the study — operationalized here as completing the consent page and first questionnaire — at different rates. Collapsed across advertisement condition, the $60-payment condition had a higher participation rate (50.1%) than the $15-payment condition (36.6%), $\chi^2_1 = 48.9$, $p < .001$, or the no-payment condition (39.5%), $\chi^2_1 = 14.2$, $p < .001$. The $15 payment did not induce a participation rate that was significantly different from the no-payment condition. This brief analysis does not take into account the fact that multiple ads were paired with three of the four payment conditions, but a comprehensive analysis of the participation rates for each combination of advertisement and monetary incentive is provided in Appendix D.

4.2 Demographics of participants

Response rates in online surveys are often lower than the response rates for surveys conducted in other media, such as postal mail or telephone (Kaplowitz et al. 2004, Andrews et al. 2003), raising concerns about how well the sample represents the targeted population. Follow-up "non-response" questionnaires are commonly sent to individuals in a sample who do not respond so that researchers can examine how non-responders differ from responders; in this study, we instead used basic demographic data to identify potentially important differences between participants and the site's population as a whole. In this section, I describe the demographics of participants and compare them to the demographics of the site's population. Table B1 in Appendix B provides a more detailed comparison.

A total of 2,984 heterosexual dating site users, recruited during the pilot and main phases of the study, agreed to participate and completed at least the first questionnaire. (Participants were 94.1% heterosexual, and only heterosexuals were included in the present analysis.) Of these participants, 45.5% were female and 54.5% were male; the site's heterosexual population overall was 63.4% male. Participants ranged in age from 18 to 76 years, with a median age of 44, as compared to 40 for the site's population. Most participants were white (73.4%, versus 72.1% for heterosexuals on the site), but substantial numbers were African-American (13.4% versus 12.2%) and Hispanic/Latino (5.8% versus 7.2%) as well.

Nearly half of participants were divorced (49.7%), substantially higher than the 41.9% in the site's heterosexual population, while 36.0% were single, 5.5% were separated, and 4.7% were widowed, all within one percentage point of each group's prevalence in the larger population. Participants were better-educated on average than the site population, with 50.9% holding a college degree or higher, versus 35.2% for heterosexuals on the site overall.

Although almost 3,000 participants joined the study and filled out the intake questionnaire, only some of them completed subsequent questionnaires about people they met through the dating site. These participants can be grouped into two partially overlapping subsets: contemporaneous respondents and retrospective respondents. Participants in both of these subsets were somewhat older on average and had a greater proportion of whites as compared to the overall pool of study participants.

The contemporaneous subset comprised 176 participants (101 female) who completed the pre-date questionnaire (Q2) just before they were to meet a correspondent from the dating site in person and the post-date questionnaire (Q3) just after they had met. Thus, their impressions of their dates were collected in real time with respect to the meeting process. Of this subset, 4.5% were recruited during the 2008 pilot phase of recruitment; the remainder were recruited during the 2009 main phase. The retrospective subset comprised 682 participants (408 female) completed the retrospective questionnaire (QR), which combined the contents of the pre-date and post-date questionnaires, about their impressions of someone from the dating site whom they had met in the past. Thus, their impressions of their dates both before and after meeting them in person were based on their recollections after the fact. Of this subset, 18.5% were recruited during in the pilot phase, while the rest were recruited during the main phase.

Participants had varying amounts of experience with online dating: in the contemporaneous subset, 28.4% had been using online dating for a year or less at the time of the study, while 44.3% had used it for one to four years and 27.2% for more than four years. In the retrospective subset, 20.3% had been using online dating for a year or less, as compared to 41.8% who had used it for one to four years and 37.9% for more than four years.

4.3 RQ1: Changes in perceptions before and after meeting in person

This section presents results pertaining to Research Question 1: How do interpersonal perceptions change as online daters make the transition from interacting online to interacting face-to-face? First, I will give an overview of these findings. Next, I consider hypotheses H1a, H1b, H2, H3a,

and H3b, given in Chapter 3, and then describe additional analysis pertinent to this research question. Table 4.4 at the end of this section summarizes the results with respect to the hypotheses.

4.3.1 Overview of findings related to Research Question 1

After meeting face-to-face for the first time, online daters in our study reported that they knew their dates better than before their meeting but found them less attractive, felt they had less in common with them, and judged them farther from their ideal for a mate. The amount of experience online daters had with the medium did not affect how these judgments changed. Participants' perceptions of some of their dates' individual personality traits changed significantly after the first meeting, and their dates' personality traits were perceived as less like their own and farther from their ideal traits for a partner. Additional analyses indicated that participants were less interested on average in romantic relationships with their dates after meeting them face-to-face. Moreover, they felt that their dates were less attracted to them after the first date than before.

In the following subsections, I focus on the nature of these before-and-after changes for contemporaneous respondents. Although I do not focus on them, I will indicate where the patterns differed for retrospective respondents. Statistical significance was assessed with paired-sample *t*-tests in most cases; the *n* and thus the degrees of freedom vary from item to item because participants were free to decline to answer any question. Tables 4.2 and 4.3 examine the mean differences between judgments made before and after meeting in person, while Table B2 in Appendix 2 provides the intercorrelations between these judgments. The tables and statistics reported in this section represent men's and women's responses taken together, but Tables B3 and B4 in Appendix B provide full results broken down by respondent's gender from both contemporaneous and retrospective questionnaires. In no cases were the results for men and women both statistically significant and in different directions.

4.3.2 Knowledge, attraction, commonality, and closeness to ideal

Among contemporaneous respondents (Table 4.2), mean ratings of how well our participants knew their dates increased from 2.95 before meeting to 3.43 after meeting on a scale from 0 (not at all) to 6 (very much), Cohen's $d = .35$, $t\,(169) = 4.31$, $p < .001$, and at the same time the mean amount they said they had in common with their dates declined from 4.28 to 3.74, $d = -.42$, $t\,(166) = -4.54$, $p < .001$. Moreover, mean overall attraction ratings declined from 4.23 to 3.60, $d = -.45$, $t\,(165) = -4.82$, $p < .001$, and ratings of how close each participant's date was to his or her ideal for a partner declined from 3.80 to 3.05, $d = -.52$, $t\,(155) = 5.35$, $p < .001$. Retrospective reports also

showed significant differences in the same directions, though with smaller effect sizes, for all of these variables (Table 4.3). Thus, the data offer strong support for hypotheses H1a, H2, and H3a.

The rated appeal of the personality and appearance of participants' dates also declined after meeting face-to-face. On a scale ranging from –3 (very unappealing) to 3 (very appealing), contemporaneous respondents' ratings of the appeal of their date's appearance declined from a mean of 1.57 before meeting to 1.22 after meeting, $d = -.25$, $t\,(158) = -2.57$, $p = .011$. Similarly, mean ratings of personality appeal dropped from 1.96 to 1.43 for contemporaneous respondents, $d = -.42$, $t\,(151) = -3.68$, $p < .001$. Among retrospective respondents, similar declines were observed in the appeal of the date's appearance and personality, though again with smaller effect sizes.

Connection with messaging history

Messaging statistics, including how many messages participants and their dates each sent, were available for 71 contemporaneous respondents and 195 retrospective respondents. Among contemporaneous respondents, the number of messages participants exchanged with their dates online was associated with their overall attraction to their dates before meeting, $r = .34$, $t\,(69) = 3.05$, $p < .01$, but it was not significantly associated with attraction after meeting face-to-face, nor with the change in attraction from before meeting in person to after. None of these associations was statistically significant in the retrospective data. Thus, hypothesis H1b was not supported.

The volume of messages exchanged was not associated with ratings either before or after meeting of how well participants felt they had gotten to know their dates, how close their dates were to their own ideal for a partner, or the appeal of their dates' personality or appearance.

4.3.3 Personality traits

Participants also rated the personality traits of their dates both before and after meeting in person for the first time. Specifically, they indicated how much they agreed or disagreed that each of 10 pairs of adjectives from the Ten-Item Personality Inventory (TIPI, Gosling et al. 2003) described their dates on a scale from –3 (strongly disagree) to 3 (strongly agree). These 10 items were combined to produce scores for each of the Big Five personality traits (openness, conscientiousness, extraversion, agreeableness, and neuroticism) as well as a composite social-desirability index consisting of the mean of the five trait scores, with neuroticism reverse-scored.

Among contemporaneous respondents, perceptions of dates' personality traits changed little after they met face-to-face for the first time. Social-desirability scores were the same before and after

Table 4.2. Pre-date and post-date perceptions, contemporaneous respondents

		BEFORE MEETING	AFTER MEETING				
	n	*M* (*SD*)	*M* (*SD*)	*d*	*t*	*df*	*p*
Overall attraction	166	4.23 (1.01)	3.60 (1.69)	–.45	–4.82	165	< .001 ◆◆◆
How close to ideal	156	3.80 (1.21)	3.05 (1.65)	–.52	–5.35	155	< .001 ◆◆◆
How much in common	167	4.28 (1.06)	3.74 (1.46)	–.42	–4.54	166	< .001 ◆◆◆
How well gotten to know	170	2.95 (1.36)	3.43 (1.38)	.35	4.31	169	< .001 ◆◆◆
Appeal of date's appearance	159	1.57 (1.19)	1.22 (1.62)	–.25	–2.57	158	.011 ◆
Appeal of date's personality	152	1.96 (0.93)	1.43 (1.52)	–.42	–3.68	151	< .001 ◆◆◆
Date's personality's corr. with ideal	111	.66 (0.27)	.56 (0.41)	–.26	–1.95	110	.054
Perceived personality similarity	160	3.94 (1.26)	3.46 (1.70)	–.32	–3.16	159	.002 ◆◆
Big 5 social-desirability composite	127	1.07 (0.77)	1.12 (0.91)	.05	0.21	126	.832
Date's openness	144	1.03 (1.14)	0.74 (1.33)	–.24	–2.62	143	.010 ◆
Date's conscientiousness	145	1.24 (1.09)	1.52 (1.39)	.22	2.80	144	.006 ◆◆
Date's extraversion	152	0.76 (1.37)	0.64 (1.52)	–.08	–1.19	151	.235
Date's agreeableness	156	1.42 (1.04)	1.42 (1.27)	.00	-0.10	155	.924
Date's neuroticism	150	–1.12 (1.18)	–1.16 (1.30)	–.04	–0.67	149	.503
Date's genuine/trustworthiness	154	1.38 (1.20)	1.25 (1.57)	–.09	–0.55	153	.581
Interest in friendship	166	4.73 (1.24)	4.32 (1.85)	–.26	–2.86	165	.005 ◆◆
Interest in casual dating	165	4.32 (1.43)	3.43 (2.05)	–.51	–5.05	164	< .001 ◆◆◆
Interest in serious dating	164	3.98 (1.45)	2.85 (2.16)	–.62	–6.74	163	< .001 ◆◆◆
Interest in "something more"	161	3.84 (1.61)	2.70 (2.22)	–.58	–6.33	160	< .001 ◆◆◆
Date's overall attraction to *P*†	126	4.60 (0.99)	4.28 (1.58)	–.24	–2.19	125	.030 ◆
How close *P* is to date's ideal†	91	4.38 (0.99)	3.61 (1.69)	–.54	–4.43	90	< .001 ◆◆◆
How much date thinks in common†	124	4.67 (0.93)	4.07 (1.43)	–.50	–4.75	123	< .001 ◆◆◆
Appeal of *P*'s appearance to date†	140	1.80 (1.08)	1.70 (1.21)	–.09	–1.00	139	.319
Appeal of *P*'s personality to date†	143	2.21 (0.79)	2.04 (1.01)	–.19	–2.09	142	.039 ◆

◆ $p < .05$ ◆◆ $p < .01$ ◆◆◆ $p < .001$

Paired t-tests; significant differences ($p < .05$) in gray.

† As estimated by respondent (*P*)

Table 4.3. Pre-date and post-date perceptions, retrospective respondents

		BEFORE MEETING	AFTER MEETING				
	n	*M* (*SD*)	*M* (*SD*)	*d*	*t*	*df*	*p*
Overall attraction	662	4.30 (1.19)	4.09 (1.82)	–.14	–3.29	661	.001 ◆◆
How close to ideal	655	3.74 (1.25)	3.32 (1.89)	–.26	–6.38	654	< .001 ◆◆◆
How much in common	662	4.23 (1.12)	3.94 (1.64)	–.21	–4.64	661	< .001 ◆◆◆
How well gotten to know	659	3.51 (1.38)	3.93 (1.84)	.26	5.45	658	< .001 ◆◆◆
Appeal of date's appearance	642	1.50 (1.30)	1.28 (1.74)	–.14	–3.63	641	< .001 ◆◆◆
Appeal of date's personality	648	1.75 (1.09)	1.45 (1.63)	–.22	–5.13	647	< .001 ◆◆◆
Date's personality's corr. with ideal	520	.62 (0.33)	.49 (0.46)	–.33	–7.71	519	< .001 ◆◆◆
Perceived personality similarity	633	4.03 (1.24)	3.40 (1.77)	–.42	–10.13	632	< .001 ◆◆◆
Big 5 social-desirability composite	581	1.12 (0.84)	0.94 (1.02)	–.19	–5.25	580	< .001 ◆◆◆
Date's openness	614	1.02 (1.17)	0.80 (1.38)	–.17	–5.03	613	< .001 ◆◆◆
Date's conscientiousness	614	1.36 (1.16)	1.28 (1.36)	–.06	–1.72	613	.086
Date's extraversion	619	0.84 (1.38)	0.71 (1.53)	–.09	–3.20	618	.001 ◆◆
Date's agreeableness	613	1.24 (1.18)	1.03 (1.45)	–.16	–4.47	612	< .001 ◆◆◆
Date's neuroticism	616	–1.10 (1.22)	–0.90 (1.51)	.15	4.32	615	< .001 ◆◆◆
Date's genuine/trustworthiness	614	1.44 (1.23)	1.21 (1.71)	–.16	–4.13	613	< .001 ◆◆◆
Interest in friendship	659	4.44 (1.31)	4.33 (1.86)	–.06	–1.65	658	.099
Interest in casual dating	646	4.10 (1.38)	3.68 (2.07)	–.24	–5.71	645	< .001 ◆◆◆
Interest in serious dating	649	3.83 (1.54)	3.26 (2.31)	–.29	–6.86	648	< .001 ◆◆◆
Interest in "something more"	642	3.67 (1.65)	3.05 (2.39)	–.31	–7.40	641	< .001 ◆◆◆
Date's overall attraction to *P*†	565	4.66 (1.05)	4.59 (1.59)	–.05	–0.59	564	.554
How close *P* is to date's ideal†	458	4.30 (1.17)	4.03 (1.72)	–.18	–1.54	457	.123
How much date thinks in common†	505	4.51 (1.05)	4.36 (1.56)	–.11	–1.84	504	.066
Appeal of *P*'s appearance to date†	584	1.85 (1.03)	1.89 (1.23)	.03	0.76	583	.450
Appeal of *P*'s personality to date†	593	2.05 (0.90)	1.98 (1.16)	–.07	–1.20	592	.229

◆ $p < .05$ ◆◆ $p < .01$ ◆◆◆ $p < .001$

Paired t-tests; significant differences ($p < .05$) in gray.

† As estimated by respondent (*P*)

meeting (mean 1.07 before, 1.12 after on a scale from –3 to 3), and only two individual traits showed any evidence of change. Ratings of openness decreased after meeting from a mean of 1.03 to .74, $d = -.24$, $t\,(143) = -2.62$, $p < .05$. By contrast, participants' ratings of their dates' conscientiousness increased significantly, from 1.24 before meeting to 1.52 afterwards, $d = .22$, $t\,(144) = 2.80$, $p < .01$. Perceptions of other individual personality traits did not change significantly. Participants did perceive their dates' personalities as less similar to their own overall after meeting, however, with the mean similarity rating decreasing from 3.94 to 3.46, $d = -.32$, $t\,(159) = -3.16$, $p < 0.01$.

Retrospective responses told a different story, showing significant declines in mean ratings of dates' openness, extraversion, agreeableness, and genuine/trustworthiness, as well as a significant increase in ratings of neuroticism (all $p < .01$). Among individual traits, only ratings of conscientiousness did not change significantly. As with the contemporaneous responses, ratings of personality similarity after meeting were lower than before meeting, with a pre-date mean of 4.03 and a post-date mean of 3.40, $d = -.42$, $t\,(632) = -10.13$, $p < .001$.

Hypothesis H3b predicts decreased congruence between participants' ratings of the personality traits of their ideal partner and their perceptions of the traits of their actual dates after the face-to-face meeting as compared to before the meeting. To investigate this relationship, I calculated the correlation between each participant's ideal personality traits in a partner and his or her actual date's personality traits, as judged by the participant both before and after meeting in person. Included in the correlation calculations were the 10 items from the TIPI and the research team's addition of "Genuine, trustworthy." By comparing the correlation coefficients calculated using pre-date judgments with those calculated using post-date judgments, I can address H3b. Contemporaneous respondents' closeness-to-ideal correlations decreased from .66 on average before they met their dates in person to .56 afterwards, $d = -.26$, $t\,(110) = -1.95$, $p = .054$, indicating that they saw their dates' personality traits as less similar to their ideal traits for a partner after their face-to-face meeting. This difference was only marginally significant in the contemporaneous data, but it was highly significant for retrospective respondents, changing from .62 before meeting to .49 after, $d = -.33$, $t\,(519) = -7.71$, $p < .001$. Taken together, these findings offer support for hypothesis H3b.

4.3.4 Participants' judgments of their dates' perceptions of them

Contemporaneous respondents believed that their dates' opinions of them had changed in somewhat similar ways to their own opinions about their dates after meeting for the first time. Before meeting, they rated their dates' overall attraction to them a mean of 4.60 on a Likert-type scale ranging from 0 (not at all) to 6 (very much). After the date, the mean rating declined to 4.28, $d =$

–.24, t (125) = –2.19, p < .05. Substantial declines were evident in participants' ratings of how close they thought they were to their date's ideal for a partner (mean 4.38 before meeting, 3.61 after, d = –.54, t [90] = –4.43, p < .001) and how much they thought their dates considered them to have in common (mean 4.67 before meeting, 4.07 after, d = –.50, t [123] = –4.75, p < .001). Likewise, contemporaneous participants rated the appeal of their personalities to their dates lower after meeting than before, with mean ratings decreasing from 2.21 before to 2.04 after, d = –.19, t (142) = –2.09, p < .05, on a Likert-type scale ranging from –3 to 3. Their judgments of how much their appearance appealed to their dates, on the other hand, did not change significantly. Moreover, none of these differences was significant for retrospective respondents.

Interestingly, participants consistently rated their own attractiveness to their dates higher than their dates' attractiveness to themselves. Before meeting, contemporaneous respondents rated their appeal to their dates a mean of 4.60, compared to 4.23 for their dates' appeal to them, d = .38, t (131) = 2.83, p < .01. Likewise, their ratings indicated that they considered themselves closer to their dates' ideal for a partner than their dates were to their own ideal, 4.38 versus 3.80, d = .51, t (101) = 3.52, p < .001, and that their dates thought they had more in common with them than the participants themselves thought they had with their dates, 4.67 versus 4.28, d = .39, t (135) = 3.38, p < .01. These differences persisted after participants had met their dates in person as well. Among retrospective respondents, too, the same pattern emerged.

4.3.5 Interest in a relationship

Participants reported substantially less interest on average in forming intimate relationships with their dates after meeting them in person. Among contemporaneous respondents, mean ratings of interest in casual dating dropped from a mean of 4.32 to 3.43, d = –.51, t (164) = –5.05, p < .001, on a Likert-type scale from 0 (not at all interested) to 6 (very interested). For serious dating, interest ratings decreased from an average of 3.98 before meeting to 2.85 after, d = –.62, t (163) = 6.74, p < .001, and for "something more" — i.e., life partnership, marriage, or civil union — interest declined from a mean of 3.84 to 2.70, d = –.58, t (160) = 6.33, p < .001. Even interest in friendship declined from a mean of 4.73 to 4.32 after meeting, d = –.26, t (165) = –2.86, p < .01. These differences were statistically significant for retrospective respondents as well. (Figures C3 and C4 in Appendix C show the distributions of these variables. The mean changes are clear, but it is also noteworthy how many respondents chose 0, or "not at all interested," after the first date.)

4.3.6 Experience with online dating

Some research (e.g., Ellison et al. 2006) suggests that online daters develop strategies over time to make more accurate judgments about potential dates before they meet them in person. If this is the case, we would expect the judgments of more experienced online daters to change less than those of their novice peers when they make the transition from interacting online with a date to interacting face-to-face. We assessed time using online dating with a multiple-choice question on the intake questionnaire (Q1). An analysis of the change in mean judgments of six variables — overall attraction, closeness to ideal for a partner, how well participants knew their dates, how much they thought they had in common with their dates, and appeal of appearance and personality — did not show any significant connection between experience with online dating and changes in judgments. That is, experienced online daters (at least 4 years' experience) were no better than novices (less than a year) at forming judgments of a date online that reflected their later face-to-face perceptions. There was no significant correlation between time using online dating and the magnitude of changes in any of these judgments, nor did the mean changes on these six variables differ significantly between experienced and novice online daters when compared with independent-samples *t*-tests.

Table 4.4. Summary of results from RQ1

HYPOTHESIS		SUPPORTED FOR CONTEMP.	SUPPORTED FOR RETRO.
H1a	Participants will rate their dates less attractive on average after meeting face-to-face for the first time than before.	✓	✓
H1b	The more messages exchanged online prior to meeting face-to-face for the first time, the more attraction will decline after the meeting occurs.	—	—
H2	Levels of perceived commonality will be lower on average after face-to-face meeting than before.	✓	✓
H3a	Average ratings of how close a participant's date is to his/her ideal for a partner will be lower after face-to-face meeting than before.	✓	✓
H3b	Levels of agreement between participant's ideal-partner Big Five personality traits and participant's perception of dyadic partner's Big Five traits will be lower after face-to-face meeting than before.	✓†	✓

† Marginally significant

4.4 RQ2: Relationship outcomes

This section presents the results of analyses pertaining to Research Question 2: What characteristics of dyads and their early interactions, online and offline, predict relationship longevity and satisfaction? First, I will discuss the various metrics of relationship success collected in this survey and the methodological challenges in predicting them from pre-date and post-date perceptions. Next, I will give a brief overview of the findings involving relationship outcomes and then describe in detail the connections between pre-date and post-date judgments and relationship duration. Finally, I will offer preliminary findings on the predictors of relationship satisfaction and intimacy two weeks after the first date. At the end of each set of analyses, a table summarizes the findings with respect to the RQ2 hypotheses (Tables 4.8 and 4.9).

4.4.1 Assessing relationship outcomes

The longitudinal questionnaires included several measures of relationship success, including scales to assess relationship satisfaction and intimacy as well as single-item measures of how much participants liked their dates and how much they loved them. However, relationship length is perhaps the simplest metric of success — with longitudinal questionnaires administered approximately 2 weeks, 6 weeks, and 10 weeks after the first date, I coded relationship length in weeks based on whether or not participants were still seeing their dates at each interval. For analyses involving this measure of relationship length, I excluded those participants whose longitudinal responses were right-censored — that is, those who dropped out without completing a longitudinal questionnaire indicating they were no longer in a relationship with their date. This left 144 participants (86 female) for the purposes of these analyses. A related measure of relationship duration from the retrospective questionnaire was a question that asked participants approximately how many times they had seen their dates after their first meeting, using a multiple-choice question with ascending ranges (whose exact presentation is given in Appendix A). As a once-off question, this metric does not suffer from right-censoring, so it was possible to use the responses of 659 participants (399 female) for analyses of duration in the retrospective data. Since participants were reporting this quantity in some cases months after they had dated the person they met, it may of course be affected by faulty recall.

Relationship satisfaction and intimacy scores were assessed via the longitudinal questionnaire (QL) approximately two weeks after the first meeting for those participants who reported that they were still dating the people they met, and then every four weeks after that. The measures of satisfaction and intimacy at 10 weeks or more past the first date provide perhaps the richest assessment

of relationship outcomes in the survey as designed and thus were designated as outcomes in the hypotheses given in Chapter 3. However, fewer than 20 participants completed the longitudinal questionnaires 10 weeks or more after their first date due to attrition and break-ups, so analyses with these variables at 10 weeks are not possible. Instead, I present results based on relationship satisfaction and intimacy scale scores at the first QL, sent to participants two weeks after the initial meeting, at which point approximately 50 contemporaneous participants completed the two scales. Because of the relatively small number of responses, I did not analyze men and women separately.

Prediction using intercorrelated pre-date and post-date judgments

Participants' perceptions of their dates before and after meeting them in person were intercorrelated on almost every rating dimension (Table B2 in Appendix B). These intercorrelations present a methodological challenge in that we would like to assess the independent contributions of pre-date and post-date perceptions to the prediction of relationship outcomes, yet these quantities are clearly intertwined both conceptually and empirically.

Perhaps the simplest approach is to compare the magnitude of zero-order correlations of pre-date and post-date judgments with relationship outcomes. This ignores the intercorrelation, but clear, consistent differences could suggest which set of judgments is the better predictor of relationship duration, satisfaction, and intimacy. Alternatively, we could consider the temporal order of the judgments and compute zero-order correlations with outcomes for the pre-date judgments but partial correlations for the post-date judgments, with the pre-date judgments partialed out. This approach seems artificial, however, in the sense that the pre-date component of post-date judgments may not be conceptually separable from the post-date measurement, even though it is mathematically possible to perform (or at least approximate) such an operation. We might instead compute change scores — that is, the signed difference between post-date and pre-date ratings — and use this as a predictor of relationship outcomes. Change scores require context, however, as an increase or decrease may differ in meaning depending on the pre-date starting point. Moreover, change scores are constrained by floor and ceiling effects due to the span of the Likert-type scales used in the questions, so that a participant who, for example, gives the highest possible pre-date rating to a quality of his or her date cannot have a positive change score.

Multiple regression is another possibility. Models with pre-date judgments and post-date judgments or change scores could characterize the relative predictive power of these quantities with respect to relationship outcomes. All three predictors cannot be entered at once for the same rating dimension because of collinearity, however, so we must choose two of the three. Pre-date and

post-date judgments would be a reasonable starting point, but their relationship to each other must be considered as well. Their interaction is problematic to interpret because high pre-date with low post-date ratings are indistinguishable from low pre-date and high post-date ratings, although the two conditions are clearly quite different from the participant's point of view. Change scores characterize these conditions more sensibly, and a change score paired with one of either pre-date or post-date judgments contains essentially the same information as the two judgments, so this appears to be the wisest choice. Pre-date judgments with the change scores have an intuitive appeal given the temporal sequence — together, they add up to post-date judgments — but if post-date judgments are, as I hypothesized, the best predictors of outcomes, it seems better to include them as their own term. Thus, I believe that the best combination of two predictors is the change score and the post-date judgment, which of course also add up to the pre-date judgment.

Although performing regression on standardized variables is common in the social sciences, especially when working with abstract units like those of a Likert-type scale, in this case it may not make sense, especially with respect to change scores. As we have already seen, participants' judgments of their dates' appeal to them on many rating dimensions declined after the first date. Most change scores, then, will have a negative mean, and standardizing these variables would, in essence, codify that decline and recode participants' ratings relative to the average decline, which would fall at 0 on the recoded scale. Since we are interested in absolute change on the original scale, standardizing is not appropriate in these analyses.

None of these approaches is without flaws, but in the following sections I will describe the results in terms of zero-order correlations with relationship outcomes and unstandardized multiple regression models using post-date ratings and change scores (post-date minus pre-date) to predict outcomes. I believe that the combination of these approaches paints the fullest possible picture of the connections between pre-date and post-date judgments and relationship duration, satisfaction, and intimacy.

4.4.2 Overview of findings related to Research Question 2

Overall, participants' pre-date judgments of their dates, including how attractive they were, how well they had gotten to know them, how much they had in common, and how close the dates were to participants' ideal for a partner, were not strongly predictive of relationship duration. In contrast, many of these same judgments made post-date were significantly associated with relationship duration. Results were less consistent regarding the predictive power of participants' perceptions of their dates' personality traits. Especially for retrospective respondents, some perceived traits of

dates were associated with relationship duration, but for contemporaneous respondents, few were significantly predictive. Participants' own personality traits were not associated with relationship duration at all.

Some pre-date judgments were, on the other hand, significantly predictive of relationship satisfaction and intimacy two weeks after the first date, as were a number of post-date judgments. Thus, generally speaking, hypotheses suggesting that pre-date perceptions would not be associated with outcomes did not hold. The perceived personality traits of dates did not effectively predict relationship satisfaction, but they were significantly associated with intimacy scores. As was the case with relationship duration, participants' own personality traits were not correlated with either of these outcomes.

In the following sections, I describe these results in more detail.

4.4.3 Relationship duration

Relationship duration was assessed for contemporaneous respondents who filled out at least one longitudinal questionnaire and whose responses were not right-censored, as well as for all retrospective respondents, as described above. In this section, I present analyses of the connection between duration and pre-date/post-date judgments for both groups with men's and women's responses considered together. Tables B5, B6, and B7 in Appendix B give more detailed results broken down by gender for these analyses. Table 4.5 gives the distributions of the relationship duration variables for both data-sets. The contemporaneous "number of weeks dating" variable was derived from longitudinal questionnaire responses at approximately the indicated intervals. The retrospective "number of dates" responses were recoded as an ordinal variable to facilitate the analysis.

Table 4.5. Relationship duration distributions by condition and gender

CONTEMPORANEOUS			RETROSPECTIVE		
Number of weeks dating	**Number of Ps**		**Number of dates after first**	**Number of Ps**	
	M	**F**		**M**	**F**
0	55	72	0	81	141
2	12	15	1–2	46	62
6	1	8	3–4	32	42
10	7	6	5–10	27	51
			10+	74	103

Table 4.6. Correlations of participants' judgments of date with relationship duration

	CONTEMPORANEOUS RESPONDENTS (DURATION METRIC: WEEKS DATING, UP TO 10)							
	BEFORE MEETING				AFTER MEETING			
	r	*t*	*df*	*p*	*r*	*t*	*df*	*p*
Overall attraction	.15	1.80	135	.074	.37	4.76	140	< .001 ◆◆◆
How much in common	.01	0.15	137	.883	.33	4.16	139	< .001 ◆◆◆
How close to ideal	.13	1.47	132	.144	.38	4.76	135	< .001 ◆◆◆
How well gotten to know	.12	1.43	139	.156	.33	4.19	140	.202
Appeal of date's appearance	.07	0.76	130	.447	.21	2.61	141	.010 ◆◆◆
Appeal of date's personality	.17	2.02	129	.046 ◆	.31	3.80	137	< .001 ◆◆◆
Date's personality's corr. with ideal	.18	1.92	107	.057	.27	2.97	113	.004 ◆◆
Date's openness	.15	1.74	127	.084	.33	3.96	128	< .001 ◆◆◆
Date's conscientiousness	.11	1.21	126	.230	.18	2.11	129	.036 ◆
Date's extraversion	.09	0.99	130	.326	.08	0.95	134	.344
Date's agreeableness	.13	1.48	130	.141	.31	3.72	135	< .001 ◆◆◆
Date's neuroticism	–.06	–0.73	131	.468	–.23	–2.67	130	.009 ◆◆
Date's genuine/trustworthiness	.28	3.36	131	.001 ◆◆	.21	2.44	134	.016 ◆

	RETROSPECTIVE RESPONDENTS (DURATION METRIC: NUMBER OF DATES AFTER FIRST)							
	BEFORE MEETING				AFTER MEETING			
	r	*t*	*df*	*p*	*r*	*t*	*df*	*p*
Overall attraction	.14	3.71	655	< .001 ◆◆◆	.44	12.66	650	< .001 ◆◆◆
How much in common	.10	2.49	654	.013 ◆	.44	12.63	649	< .001 ◆◆◆
How close to ideal	.11	2.93	652	.004 ◆◆	.48	13.92	644	< .001 ◆◆◆
How well gotten to know	.14	3.50	654	< .001 ◆◆◆	.60	19.27	646	< .001 ◆◆◆
Appeal of date's appearance	.07	1.77	636	.076	.27	7.17	650	< .001 ◆◆◆
Appeal of date's personality	.15	3.95	645	< .001 ◆◆◆	.39	10.87	649	< .001 ◆◆◆
Date's personality's corr. with ideal	.03	0.60	555	.547	.20	4.75	558	< .001 ◆◆◆
Date's openness	.09	2.37	629	.018 ◆	.25	6.54	624	< .001 ◆◆◆
Date's conscientiousness	.08	2.08	630	.038 ◆	.18	4.65	624	< .001 ◆◆◆
Date's extraversion	.04	0.99	637	.324	.12	3.14	624	.002 ◆◆
Date's agreeableness	.06	1.52	631	.128	.19	4.94	623	< .001 ◆◆◆
Date's neuroticism	–.02	–0.60	629	.551	–.08	–1.94	627	.053
Date's genuine/trustworthiness	.10	2.40	631	.017 ◆	.25	6.38	622	< .001 ◆◆◆

◆ $p < .05$ ◆◆ $p < .01$ ◆◆◆ $p < .001$

T-tests, significant differences ($p < .05$) in gray.

Association with measures of attraction

Pre-meeting judgments of dates' overall attractiveness, how much participants had in common with their dates, how close the dates were to their ideal for a partner, and how well they had gotten to know their dates were not associated with relationship length in weeks for contemporaneous respondents (top left quadrant of Table 4.6), as predicted in hypothesis H4. For retrospective respondents, three of these four judgments — all except how much in common — were significantly associated with the number of subsequent dates, but the correlations were weak ($r < .15$ in all cases, as shown in the bottom left quadrant of Table 4.6).

After meeting their dates face-to-face, participants' judgments of them were far more predictive of relationship duration (right half of Table 4.6). Contemporaneous respondents' post-date ratings of their dates' overall attractiveness were correlated with relationship length in weeks, $r = .37$, $t\,(140) = 4.76$, $p < .001$, as predicted in H4. Similarly, the correlation among retrospective respondents between post-date overall attractiveness and the number of subsequent dates was .44, $t\,(650) = 12.66$, $p < .001$. Moreover, significant correlations were evident in the contemporaneous and retrospective data for the relationship between duration and how well participants had gotten to know their dates ($r = .33$ contemporaneous, $r = .60$ retrospective), how close dates were to participants' ideals ($r = .38$ contemporaneous, $r = .48$ retrospective), and how much they had in common with their dates ($r = .33$ contemporaneous, $r = .44$ retrospective).

Association with personality traits of dates

As predicted in hypothesis H5, the level of agreement between participants' ideal personality traits in a partner and their perceptions of their dates' actual personality traits as assessed before meeting them in person was not associated with relationship duration (Table 4.6). Furthermore, the level of ideal-actual agreement as assessed after meeting face-to-face was correlated with duration, $r = .24$, $t\,(113) = 2.97$, $p = .004$ for contemporaneous respondents, and $r = .20$, $t\,(558) = 4.75$, $p < .001$ for retrospective respondents.

Hypothesis H6a predicted that dates' conscientiousness, agreeableness, extraversion, and positive emotionality (reverse-scored neuroticism), as assessed by participants both before and after meeting their dates in person, would be associated with relationship outcomes. Only a few individual personality traits of participants' dates as assessed before meeting in person were significantly, though in most cases weakly, associated with relationship duration: genuine/trustworthiness for both contemporaneous and retrospective respondents, and openness and conscientiousness for retrospective respondents only (left side of Table 4.6). On the other hand, most personality traits of dates as

assessed after the first meeting were significantly associated with relationship duration (right side of Table 4.6). The only exceptions were extraversion among contemporaneous respondents and neuroticism among retrospective respondents. Thus, support for hypothesis H6a is mixed.

Association with participants' own personality traits

Hypothesis H6b predicted that higher levels of conscientiousness, agreeableness, extraversion, and positive emotionality in participants, as determined from their self-reports on the Ten-Item Personality Inventory, would be positively associated with relationship outcomes. However, levels of these personality traits in participants were not significantly associated with relationship duration for men or women in the contemporaneous or retrospective groups. Details of these analyses are provided in Table B7 in Appendix B.

Association with pre-date to post-date change scores

We have established that, as hypothesized, measures of attraction before meeting face-to-face do not meaningfully predict relationship duration, while the same quantities assessed after meeting in person are consistently predictive. But what is the role of the *change* in perceptions as participants move from interacting online to interacting face-to-face? Nearly all of the pre-date/post-date change scores for variables related to attraction were significantly correlated with relationship du-

Table 4.7. Correlations of relationship duration metrics with pre-date/post-date change scores

Post-date – pre-date change in:	CONTEMPORANEOUS RESPONDENTS Metric: Duration in weeks					RETROSPECTIVE RESPONDENTS Metric: Number of dates after first				
	r	*t*	*df*	*p*		*r*	*t*	*df*	*p*	
Overall attraction	.26	3.10	133	.002	◆◆	.37	10.26	649	< .001	◆◆◆
How close to ideal	.23	2.71	127	.008	◆◆	.44	12.26	642	< .001	◆◆◆
How much in common	.30	3.63	134	< .001	◆◆◆	.38	10.47	647	< .001	◆◆◆
How well gotten to know	.17	2.08	137	.040	◆	.49	14.25	644	< .001	◆◆◆
Date's appearance	.16	1.82	129	.071		.24	6.32	632	< .001	◆◆◆
Date's personality	.20	2.27	125	.025	◆	.31	8.36	638	< .001	◆◆◆

◆ $p < .05$ ◆◆ $p < .01$ ◆◆◆ $p < .001$

Significant differences ($p < .05$) in gray.

Table 4.8. Regression models to predict relationship duration from post-date ratings and pre-date/post-date change scores

(A) CONTEMPORANEOUS RESPONDENTS
Outcome: Duration in weeks

	INTERCEPT				POST-DATE RATING				CHANGE FROM PRE-DATE				
Variable	**Est.**	**SE**	***t***	***p***	**Est.**	**SE**	***t***	***p***	**Est.**	**SE**	***t***	***p***	R^2
Overall attraction	–1.67	1.11	–1.51	.134	.84	.27	3.14	.002	–.22	.27	–.81	.421	.13
How close to ideal	–1.07	.93	–1.15	.254	.81	.25	3.23	.002	–.14	.24	–.61	.544	.13
How much in common	–.21	1.09	–.19	.851	.46	.26	1.79	.075	.29	.25	1.14	.257	.11
How well gotten to know	–1.11	.73	–1.52	.132	.73	.22	3.34	.001	–.04	.20	–.19	.851	.10
Date's appearance	.91	.40	2.27	.025	.33	.22	1.49	.140	.05	.23	.22	.826	.04
Date's personality	–.22	.59	–.37	.712	.97	.29	3.35	.001	–.37	.27	–1.38	.171	.12

Degrees of freedom range between 124 and 136; variation is due to questionnaire items left unanswered.

(B) RETROSPECTIVE RESPONDENTS
Outcome: Number of dates after first

	INTERCEPT				POST-DATE RATING				CHANGE FROM PRE-DATE				
Variable	**Est.**	**SE**	***t***	***p***	**Est.**	**SE**	***t***	***p***	**Est.**	**SE**	***t***	***p***	R^2
Overall attraction	.39	.22	1.76	.079	.35	.05	6.99	< .001	.07	.05	1.26	.207	.20
How close to ideal	.86	.18	4.75	< .001	.31	.05	6.62	< .001	.15	.05	2.96	.003	.24
How much in common	.41	.23	1.78	.075	.36	.05	6.73	< .001	.11	.05	1.94	.053	.20
How well gotten to know	–.06	.16	–.39	.698	.47	.04	11.56	< .001	.08	.04	2.12	.035	.37
Date's appearance	1.64	.10	16.96	< .001	.17	.05	3.41	< .001	.13	.06	2.31	.021	.08
Date's personality	1.30	.11	11.41	< .001	.37	.06	6.59	< .001	.03	.06	.50	.620	.16

Degrees of freedom range between 631 and 648; variation is due to questionnaire items left unanswered.

Each row represents one OLS regression model.

Significant terms ($p < .05$) in gray.

ration (Table 4.7), but as discussed above, change scores are hard to interpret as outcome predictors without either pre-date or post-date judgments as a reference point.

To examine their predictive power more closely, for the contemporaneous and retrospective datasets, I built a series of six multiple linear regression models to predict relationship duration using pre-date/post-date change scores and post-date judgments of overall attractiveness, how much participants had in common with their dates, how well they got to know them, how close the dates were to participants' ideal, the appeal of the date's appearance, and the appeal of the date's personality (Table 4.8). I also built analogous logistic regression models, but I do not report the results here, as the patterns of magnitude and significance are nearly identical to those in the linear regression models.

In the contemporaneous data, where the outcome variable was relationship duration in weeks, the coefficients for post-date judgments were positive and highly significant in four of the six models, while the coefficients for the change scores were not significant at the .05 level in any of the models (Table 4.8). That is, the associations between pre-date/post-date changes in perceptions and relationship duration, shown in Table 4.7, vanished when we controlled for post-date judgments.

In the retrospective data, all six of the coefficients for post-date judgments were positive and highly significant, but in contrast to the contemporaneous data, the coefficients for the change score in three of the models were also positive and significant. That is, for ratings of how well participants had gotten to know their date, how close the date was to their ideal, and the appeal of the date's appearance, an increase from before meeting to after meeting on these dimensions was associated with how many times they saw their date after the first face-to-face encounter, above and beyond what post-date judgments alone would predict.

Table 4.9. Summary of relationship duration results from RQ2

HYPOTHESIS		SUPPORTED FOR CONTEMP.		SUPPORTED FOR RETRO.	
H4	Higher levels of attraction after meeting face-to-face for the first time will predict longer relationship duration. However, levels of attraction before meeting face-to-face will not be associated with this outcome.	✓		✓†	
H5	The amount of agreement between participants' ideal-partner personality traits and their perceptions of their dates' actual personality traits after meeting face-to-face for the first time will predict the length of relationship. However, ideal-actual personality trait agreement before meeting face-to-face will not be associated with this outcome.	✓		✓	
H6a	Higher ratings by participants (*Pre*- and *Post*-meeting) of the following of their dates' personality traits will predict a longer relationship:	Pre	Post	Pre	Post
	Conscientiousness	—	✓	✓	✓
	Agreeableness	—	✓	—	✓
	Extraversion	—	—	—	✓
	Positive emotionality	—	✓	—	—
H6b	Higher levels of conscientiousness, agreeableness, extraversion, and positive emotionality in participants' own self-reports will predict a longer relationship.	—		—	

† Pre-meeting correlations were statistically significant but too small to be meaningfully predictive.

4.4.4 Relationship satisfaction and intimacy

Relationship satisfaction and intimacy were assessed two weeks after the first meeting for those contemporaneous participants who were still dating the people they met. Using the scoring rubrics for the relationship satisfaction scale (Hendrick 1988) and the intimacy scale (Prager and Buhrmester 1998), I computed overall scores for each scale from their constituent items. In this section, I present analyses of the association of these satisfaction and intimacy scores with pre-meeting and post-meeting judgments of the date and consider support for hypotheses H4, H5, and H6 separately for these two outcome measures. Table 4.15 provides a summary of hypothesis test results. Figure 4.1 shows the distributions of relationship satisfaction and intimacy.

Relationship satisfaction

In contrast with the results for relationship duration, some of participants' pre-meeting as well as post-meeting judgments of their dates were associated with both relationship satisfaction and intimacy two weeks after the first date (Table 4.10). Notably, pre-date and post-date ratings of both how close dates were to participants' ideal for a partner and the appeal of dates' appearance were significantly associated with relationship satisfaction. Post-date ratings of overall attractiveness, how much participants saw in common with their dates, and how well they had gotten to know them were also predictive of satisfaction at two weeks, as were pre-date ratings of dates' genuine/trustworthiness. Participants' own personality traits were not associated with satisfaction. Thus, for relationship satisfaction, hypothesis H4 was supported — as predicted, post-date judgments

Figure 4.1. Distributions of relationship satisfaction and intimacy two weeks after first date

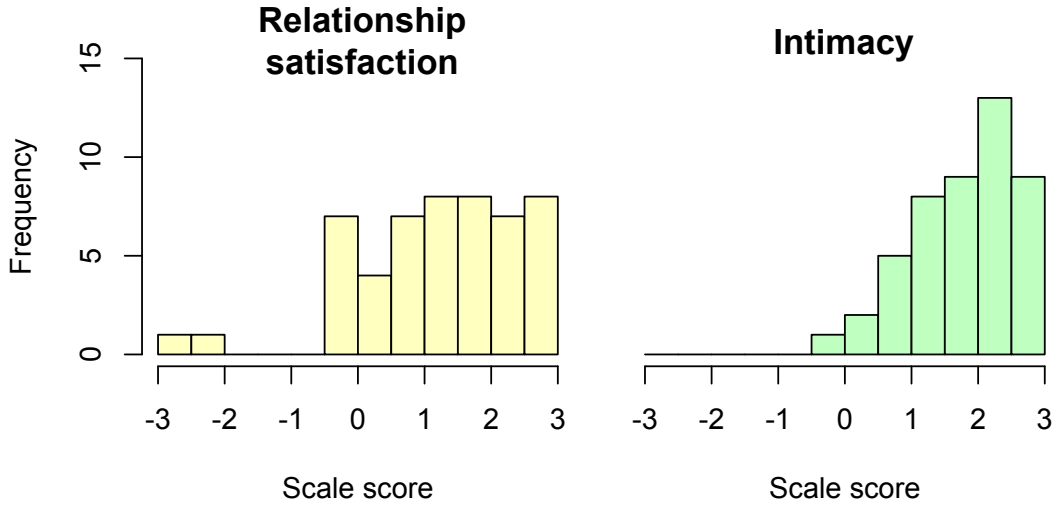

Table 4.10. Correlations of contemporaneous respondents' judgments of date with relationship satisfaction scores 2 weeks after first meeting

	PRE-DATE JUDGMENTS				POST-DATE JUDGMENTS			
	r	***t***	***df***	***p***	***r***	***t***	***df***	***p***
Overall attraction	.28	2.00	46	.051	.44	3.39	49	.001 ◆◆
How much in common	.20	1.41	48	.164	.30	2.18	48	.034 ◆
How close to ideal	.58	4.88	46	< .001 ◆◆◆	.60	5.16	47	< .001 ◆◆◆
How well gotten to know	.11	0.78	48	.438	.36	2.69	49	.010 ◆
Appeal of date's appearance	.52	4.03	44	< .001 ◆◆◆	.63	5.67	49	< .001 ◆◆◆
Appeal of date's personality	.15	1.01	44	.318	.21	1.50	48	.139
Date's personality's corr. with ideal	.27	1.75	38	.087	.17	1.08	41	.285
Date's openness	.15	0.98	44	.332	.23	1.58	44	.122
Date's conscientiousness	.21	1.44	43	.156	.27	1.89	44	.066
Date's extraversion	.21	1.40	44	.169	.10	0.73	49	.472
Date's agreeableness	.22	1.49	45	.143	.17	1.23	48	.225
Date's neuroticism	–.25	–1.75	45	.087	–.28	–1.95	46	.057
Date's genuine/trustworthiness	.29	2.04	46	.047 ◆◆	.13	0.89	47	.381

◆ $p < .05$ ◆◆ $p < .01$ ◆◆◆ $p < .001$

T-tests, significant differences ($p < .05$) in gray.

of attraction were associated with satisfaction, while pre-date judgments were not. On the other hand, hypotheses H5 and H6a, concerning the correlations of intimacy with dates' personality traits and their similarity to participants' ideals, were not supported. Hypothesis H6b, regarding the link between relationship satisfaction and participants' own personality traits, was also unsupported (Table B8 in Appendix B).

Intimacy

A substantial majority of both pre-meeting and post-meeting judgments of participants' dates were significantly correlated with intimacy scores at two weeks (Table 4.11). In particular, post-date judgments of attraction and the similarity of the date's personality traits to participants' ideals were linked with intimacy, but so were pre-date perceptions, thus offering only partial support for hypotheses H4 and H5. Conscientiousness, agreeableness, and positive emotionality, but not extraversion, were associated with intimacy, supporting hypothesis H6a. As with relationship satisfaction, however, participants' own personality traits were not correlated with intimacy (Table B8 in Appendix B), so H6b was not supported.

Table 4.11. Correlations of contemporaneous respondents' judgments of date with intimacy scores 2 weeks after first meeting

	PRE-DATE JUDGMENTS				POST-DATE JUDGMENTS			
	r	***t***	***df***	***p***	***r***	***t***	***df***	***p***
Overall attraction	.33	2.28	43	.028 ◆	.41	3.02	45	.004 ◆◆
How much in common	.32	2.26	44	.029 ◆	.34	2.38	44	.022 ◆
How close to ideal	.42	3.05	43	.004 ◆◆	.43	3.16	44	.003 ◆◆
How well gotten to know	.06	0.41	44	.682	.35	2.55	45	.014 ◆
Appeal of date's appearance	.29	1.89	40	.066	.43	3.18	45	.003 ◆◆
Appeal of date's personality	.33	2.23	40	.031 ◆	.25	1.73	44	.090
Date's personality's corr. with ideal	.49	3.30	34	.002 ◆◆	.45	3.09	37	.004 ◆◆
Date's openness	.44	3.09	40	.004 ◆◆	.64	5.30	40	< .001 ◆◆◆
Date's conscientiousness	.34	2.22	39	.032 ◆	.45	3.20	40	.003 ◆◆
Date's extraversion	.17	1.09	40	.283	.14	0.98	45	.332
Date's agreeableness	.37	2.56	41	.014 ◆	.40	2.92	44	.005 ◆◆
Date's neuroticism	–.39	–2.68	41	.010 ◆	–.35	–2.38	42	.022 ◆
Date's genuine/trustworthiness	.38	2.66	42	.011 ◆	.42	3.02	43	.004 ◆◆

◆ $p < .05$ ◆◆ $p < .01$ ◆◆◆ $p < .001$

T-tests, significant differences ($p < .05$) in gray.

Association with pre-date to post-date change scores

Next, we consider change scores between pre-date and post-date ratings in connection with relationship satisfaction and intimacy. In contrast to relationship duration, change scores by themselves were not correlated with these outcomes (Table 4.12). A series of multiple regressions using post-date ratings and the change from pre-date assessments of the same qualities to predict satisfaction and intimacy showed that, even with post-date ratings taken into account, change scores for most variables were still not associated with the outcomes (Tables 4.13 and 4.14). However, there was one exception for each of the two outcome metrics.

For the prediction of relationship satisfaction, the significant change-score term emerged with ratings of how close dates were to participants' ideal for a partner. In that model, post-date ratings carried a significant, positive coefficient, but the change from pre-date ratings had a significant, negative one. This suggests that an increase in closeness-to-ideal ratings from pre-date to post-date is associated with *lower* relationship satisfaction scores at two weeks. It would follow that, all things being equal, satisfaction would be higher if closeness-to-ideal ratings were consistently high pre-date and post-date. On the other hand, the change-score term could also mean that a decrease

Table 4.12. Correlations of intimacy and relationship satisfaction with pre-date/post-date change scores

Post-date – pre-date change in:	RELATIONSHIP SATISFACTION				INTIMACY			
	r	***t***	***df***	***p***	***r***	***t***	***df***	***p***
Overall attraction	.10	0.71	46	.484	.05	0.32	43	.750
How close to ideal	–.10	–0.64	45	.524	–.01	–0.08	42	.937
How much in common	.11	0.77	47	.445	.04	0.27	43	.788
How well gotten to know	.15	1.06	48	.293	.19	1.26	44	.214
Date's appearance	.15	1.01	44	.316	.18	1.19	40	.242
Date's personality	.07	0.48	43	.636	.01	0.07	39	.941

◆ $p < .05$ ◆◆ $p < .01$ ◆◆◆ $p < .001$

Significant differences ($p < .05$) in gray.

in closeness-to-ideal ratings after meeting is linked to higher relationship satisfaction scores, but especially given the large positive coefficient on the post-date ratings, this interpretation is less likely *prima facie*.

In predicting intimacy, the regression model using ratings of the appeal of the date's personality had a significant change-score term, again with a negative coefficient. We can interpret this as above: an increase in the appeal of the date's personality after meeting is associated with *lower* intimacy scores two weeks later, while consistently high ratings of personality appeal predict greater intimacy. The alternative interpretation is that a decrease in personality appeal predicts higher intimacy scores, which is problematic for the same reason as before.

Table 4.13: Regression models to predict contemporaneous respondents' relationship satisfaction scores at 2 weeks from post-date ratings and pre-date/post-date change scores

	INTERCEPT				POST-DATE RATING				CHANGE FROM PRE-DATE				
Variable	**Est.**	**SE**	***t***	***p***	**Est.**	**SE**	***t***	***p***	**Est.**	**SE**	***t***	***p***	R^2
Overall attraction	–1.18	.83	–1.42	.163	.53	.18	2.95	.005	–.11	.18	–.64	.527	.17
How close to ideal	–1.91	.52	–3.70	.001	.80	.13	6.35	< .001	–.42	.12	–3.46	.001	.48
How much in common	–.72	1.00	–.73	.472	.45	.22	2.03	.048	–14	.21	–.65	.520	.09
How well gotten to know	–.43	.71	–.60	.552	.40	.17	2.29	.026	.02	.13	.17	.867	.12
Date's appearance	–.10	.27	–.37	.717	.81	.13	6.01	< .001	–.26	.14	–1.88	.066	.47
Date's personality	.40	.61	.66	.512	.40	.27	1.48	.145	–.19	.23	–.82	.419	.05

Degrees of freedom range between 42 and 47; variation is due to missing data.

Each row is one OLS regression model.

Significant terms ($p < .05$) in gray.

Table 4.14. Regression models to predict contemporaneous respondents' intimacy scores at 2 weeks from post-date ratings and pre-date/post-date change scores

	INTERCEPT				POST-DATE RATING				CHANGE FROM PRE-DATE				
Variable	**Est.**	**SE**	***t***	***p***	**Est.**	**SE**	***t***	***p***	**Est.**	**SE**	***t***	***p***	R^2
Overall attraction	.09	.57	.16	.878	.37	.12	3.03	.004	–.13	.12	–1.13	.267	.18
How close to ideal	.19	.45	.42	.674	.40	.11	3.63	< .001	–.21	.11	–1.94	.060	.24
How much in common	–.09	.67	–.13	.896	.44	.15	2.87	.006	–.23	.14	–1.69	.098	.17
How well gotten to know	.64	.50	1.28	.208	.26	.12	2.12	.040	.05	.09	.61	.544	.13
Date's appearance	1.17	.24	4.95	< .001	.33	.12	2.80	.008	–.06	.12	–.48	.637	.20
Date's personality	.71	.39	1.82	.076	.49	.18	2.80	.008	–.32	.15	–2.12	.040	.17

Degrees of freedom range between 38 and 43; variation is due to missing data.

Each row is one OLS regression model.

Significant terms ($p < .05$) in gray.

Table 4.15. Summary of relationship satisfaction and intimacy results from RQ2

HYPOTHESIS		SUPPORTED FOR SATIS.		SUPPORTED FOR INTIM.	
H4	Higher levels of attraction after meeting face-to-face for the first time will predict relationship satisfaction and intimacy.	✓		✓	
	However, levels of attraction before meeting face-to-face will not be associated with these outcomes.	✓		—	
H5	The amount of agreement between participants' ideal-partner personality traits and their perceptions of their dates' actual personality traits after meeting face-to-face for the first time will predict relationship satisfaction and intimacy.	—		✓	
	However, ideal-actual personality trait agreement before meeting face-to-face will not be associated with these outcomes.	✓		—	
H6a	Higher ratings by participants (*Pre*- and *Post*-meeting) of the following of their dates' personality traits will predict relationship satisfaction and intimacy:	Pre	Post	Pre	Post
	Conscientiousness	—	—	✓	✓
	Agreeableness	—	—	✓	✓
	Extraversion	—	—	—	—
	Positive emotionality	—	—	✓	✓
H6b	Higher levels of conscientiousness, agreeableness, extraversion, and positive emotionality in participants' own self-reports will predict relationship satisfaction and intimacy.	—		—	

5 Discussion

This study has taken a longitudinal survey approach to examine two primary research questions: how perceptions change when an online dating couple meets in person for the first time, and how those early perceptions are associated with longer-term relationship outcomes. It also contributes findings about recruitment, incentives, and response rates in online survey research. In this chapter, I will discuss the findings presented in Chapter 4 and suggest future directions for work in this area.

5.1 Changes in perceptions after first meeting

On the whole, online daters in our study liked their dates less and saw fewer possibilities for romantic relationships with them after meeting them face-to-face for the first time. Participants' judgments of their dates' attractiveness, how much they had in common, and how close their dates were to their ideal for a partner declined on average after their first meeting in person. Moreover, participants were less interested in romantic relationships with their dates after the first face-to-face encounter than before.

Considered together, these results are consistent with what we would expect if Walther's proposed hyperpersonal effect (Walther 1996) operates in online dating. Specifically, the hyperpersonal effect suggests that a relatively lean communication medium such as online dating would lead to more extremely positive or negative impressions of a person as compared to face-to-face impressions of the same person. As I discussed in Chapter 2, the specifics of the online dating context make it more likely that in that environment the impressions would tend toward the positive, not the negative, due to both the qualities of the medium and the incentive for users to present themselves favorably. Thus, we might expect that overly positive impressions formed by online daters in their initial online interactions would be more favorable than those that arise when they later meet their dates face-to-face, leading to the pattern of results presented in this work.

Walther's (1996) specification of the hyperpersonal effect comprises several mechanisms that lead to this discrepancy. The present work was not designed to assess whether these specific mechanisms caused the difference between online and face-to-face impressions, which is one direction for future research that I will discuss later in this chapter. Nonetheless, the empirical evidence for

the hyperpersonal effect in other mediated communication environments in conjunction with my results in this study make Walther's framework one plausible explanatory tool for understanding the changes that take place in the transition from online dating to face-to-face meeting.

It is also possible — in addition to or instead of the hyperpersonal effect —that online daters gain some type of information from a face-to-face meeting that they cannot obtain through online interaction. Certainly, qualities such as voice and body language may play a role in attraction, as might the ill-defined concept of "chemistry," by which we usually mean something like strong and immediate mutual affinity. These qualities are difficult to assess through most online dating sites. Moreover, perhaps it is not the change in medium at all but rather the incremental gathering of additional information through any medium that leads to lower levels of liking when online daters meet in person (cf. Norton et al. 2007). If this is the case, they might like each other less the longer they communicated in any medium.

5.2 Relationship outcomes

Four different relationship outcome metrics were analyzed in this study: relationship duration in weeks, relationship duration in number of dates after the first, and relationship satisfaction and intimacy assessed two weeks after the first date. Among these outcome metrics, the measures of duration differ from satisfaction and intimacy in one crucial way: they included participants who did *not* continue dating people they met as well as those who did. That is, analyses of duration included many respondents with a duration of 0, whereas the satisfaction and intimacy scales were necessarily obtained only from participants who had a nascent relationship to assess. This important difference may explain the different patterns of results observed in Chapter 4: pre-date judgments were generally not predictive of duration, but in many cases they were significantly associated with satisfaction and intimacy. I discuss these results in greater detail in the following sections.

5.2.1 Relationship duration

Overall, participants' perceptions of their dates *before* meeting them in person were not strongly predictive of how long the relationship would last, at least up to 10 weeks from the first date. However, their perceptions *after* meeting face-to-face were much more strongly and significantly correlated with duration. This points again to the notion that online daters appear to gain additional relationship-relevant information — whether novel in kind or merely sufficient in quantity — from the first face-to-face encounter that they were unable to obtain through online interaction.

Out of 13 dimensions on which participants assessed their dates before meeting them, among contemporaneous respondents only two were significantly associated with relationship duration (Table 4.6, upper left quadrant). The number was higher among retrospective respondents, with eight rating dimensions significantly correlated with duration (Table 4.6, lower left quadrant), but the correlations were quite small in magnitude, ranging from $r = .08$ to $r = .14$.

Participants' judgments of their dates after they had met them in person, however, were far more often and more strongly correlated with relationship duration. Among contemporaneous respondents, 11 post-meeting rating dimensions were predictive of duration, and among retrospective respondents 12 were significantly associated. Moreover, these correlations were much greater in magnitude, as large as $r = .38$ for contemporaneous respondents and $r = .60$ for retrospective respondents.

It is important to consider why more significant pre-date correlates of duration emerged for retrospective than for contemporaneous respondents, and why the correlations tended to be larger in magnitude for the retrospective group. It is possible the true predictiveness of the pre-date and post-date judgments of these groups differed with respect to duration, but sample size and methodological variation may explain these differences as well. First, the issue of sample size: men were less numerous than women in both the contemporaneous and retrospective data. There were approximately 130 participants in the contemporaneous sample and about 640 retrospective respondents. Although the exact number of respondents to each question varied, as participants were always free to decline to answer any particular question, these differences in sample size gave us less statistical power in the analysis of contemporaneous responses as compared to retrospective.

Next, the issue of methodology: the retrospective questionnaire, in asking participants to recollect how they felt about their date just before and just after meeting face-to-face, may have elicited responses biased by memory effects or the subsequent course of the relationship. In particular, participants' feelings about their date at the time of questionnaire administration may have colored their recollections, or the passage of time may have blurred together the distinct perceptions of the date at two temporally adjacent moments (pre-date and post-date) that, for some participants at least, were months in the past. These issues would not have affected contemporaneous respondents, who answered two separate questionnaires regarding their perceptions of their dates at the time of questionnaire administration. However, the overall pattern of results is similar between the two data-sets, suggesting that the easier-to-obtain retrospective responses may not be substantially compromised relative to contemporaneously collected responses, at least in the present study.

5.2.2 Relationship satisfaction and intimacy

Both pre-date and post-date judgments were significantly associated with intimacy and to some degree relationship satisfaction, in contrast to the results for relationship duration, for which pre-date judgments were generally not predictive. As discussed above, this is probably because only people who were still dating the people they met could complete the satisfaction and intimacy scales in the longitudinal questionnaire, so those who were not still seeing their dates were excluded from the analysis of these outcomes. These participants could, however, be entered into the duration analyses with a duration of 0. Thus, it appears that pre-date judgments were not useful in predicting which participants would form a relationship with their dates (i.e., have a non-zero duration), but they were useful in predicting more nuanced outcomes among those who did.

This distinction could reflect a true difference in the predictability of the various outcome metrics from the data gathered. However, it is also possible that participants who successfully began relationships during the study were better able to identify people online with whom they could have a successful relationship. Since none of these participants have a duration of 0 and none of the participants who did not begin a relationship were able to report intimacy and satisfaction, the present data do not allow us to distinguish between these possibilities.

5.2.3 Analysis of pre-date to post-date change scores

For three of the four relationship outcome metrics, the changes in participants' judgments of their dates once they met them face-to-face for the first time had, with few exceptions, little predictive power beyond what the post-meeting ratings alone captured. The only outcome metric for which this did not hold was the number of times retrospective respondents reported seeing their dates after the first meeting. As reported in Chapter 4, change scores — that is, post-date ratings less pre-date ratings — for three rating dimensions were positively associated with this outcome. This suggests that participants who were pleasantly surprised by their dates had, on average, longer relationships with them than those who were consistently pleased with them both before and after meeting them in person. However, the coefficients for the change scores, which were in the same original Likert-type units as the pre-date and post-date ratings, were substantially smaller than those for the post-date ratings, suggesting that post-date perceptions still dominated. Furthermore, the lack of a similar result in the analysis of duration in weeks in the contemporaneous data raises the question of whether faulty recall among retrospective respondents may have influenced this finding.

For most rating dimensions, change scores were not predictive of relationship satisfaction and intimacy. The two exceptions to this had negative coefficients, as discussed in Chapter 4, suggesting that an increase in closeness-to-ideal ratings after meeting would predict lower satisfaction scores, and an increase in the appeal of the date's personality would predict lower intimacy scores. I believe these somewhat surprising results can be explained as follows. There are three possible patterns of change for any rating dimension after meeting: ratings can go up, go down, or stay the same. Those participants whose ratings declined after the first date would be less likely to continue seeing the people they met. Since the only participants who completed the intimacy and satisfaction scales were those who had continued to date the people they had met, this pool likely did not include those whose assessments of their dates became less favorable after the first meeting or those who had relatively unfavorable assessments both pre-date and post-date. Thus, the pool of respondents used for this analysis would tend to include those whose ratings became more favorable or stayed at the same relatively high level. Of these two groups, those whose ratings became more favorable were presumably less favorable to begin with than those who started favorably disposed and remained that way. Thus, those who reported an increase in favorable perceptions may actually have liked their dates less overall, or been less certain of the relationship possibilities, than those who viewed their dates favorably both before and after meeting them. This distinction would explain the negative coefficients on the change scores for the two variables noted above, though of course it is not the only possible explanation.

A broader question emerges with these data as well: since both pre-date and post-date judgments were associated with satisfaction and intimacy, unlike with duration, why were change scores for most rating dimensions not significantly predictive of these outcomes? The most parsimonious answer is that pre-date and post-date judgments on these dimensions were intercorrelated (Table B2 in Appendix B), perhaps even more strongly for those participants who ended up dating the people they met and thus were eligible to complete the satisfaction and intimacy scales than for those who did not, so any changes may not have been not particularly large or meaningful. An informal check of this conjecture found that, indeed, the mean magnitude of change scores was much smaller for those who completed the intimacy and satisfaction scales than for those who did not, e.g., means of .23 versus –.95 on overall attraction and .16 versus –.78 for how much participants felt they had in common with their dates.

5.3 Limitations

The most obvious limitation of the present work stems from the results of the recruitment process discussed above. Although advertising on a real online dating site allowed us to recruit real online dating users, the extremely low response rate to the advertisements makes it difficult to make any claims of generalizability to the site's overall population or online daters more broadly. However, this difficulty is mitigated somewhat in the present work, which focuses on within-participant changes over time rather than attempting to make inferences about the characteristics of one population relative to another.

Another limitation is that the survey captured only one side of the story: the participants'. We tried in several ways to recruit their dates to participate as well so that we could simultaneously assess couples' perceptions of each other, and indeed this was central to the study as originally proposed. The low response rate to our recruitment advertisements, however, made this impossible. Having paired responses would have allowed us to compare, for example, participants' perceptions of their dates' personality traits with the dates' own self-reports, facilitating the analysis of perceptual accuracy as well as the development of additional potential predictors of relationship outcomes.

Finally, a technical limitation: the number of statistical tests performed in my analysis is high enough that some individual test results may be spurious. In particular, with the common $\alpha = .05$ threshold for statistical significance, one in 20 tests will on average reach significance due to chance, without the presence of a real effect. This concern is mitigated in two ways. First, the actual p-values for many tests was less than .001, a very low probability of finding by chance differences of the magnitude observed. Second, the over-arching conclusions of this work rest not on any single test but rather on the preponderance of statistically significant results in the sets of tests performed to evaluate the hypotheses and research questions. Thus, even if several individual results are spurious, they are unlikely to change the overall conclusions. Of course, replication of these results with other samples of online daters is ultimately the best test of their validity.

5.4 Next steps

This work represents a starting point in the understanding of relationship initiation through online dating systems. Having established that participants liked their dates less on average after meeting them in person, one next step would be to examine why these judgments became less favorable. This result is consistent with what we would expect if the hyperpersonal effect operates in online dating, but the present data do not allow us to assess whether the specific mechanisms proposed

by Walther (1996), such as selective self-presentation and overattribution based on perceptions of commonalities, are the cause.

Controlled experiments, field studies, and interviews could address this question. As a starting point, it would be helpful to examine how perceptions change when people meet first face-to-face and then continue their interaction online, the reverse of the circumstance in online dating. A study with this progression of communication media would help answer the question of whether it is the specific information gained face-to-face that is important, or merely the additional information that comes from interacting more in any context. Certainly, this sequence of face-to-face followed by online interaction could be induced in an experiment, but the contrivance required to do so might make the situation too unrealistic for the results to be informative. However, it is difficult to find this type of situation in real life, too. Speed dating services provide an environment where it might occur if people who meet in person through the service correspond online for a time before seeing each other again, but typically participants live in the same area, so this would seem to be an unusual progression for speed daters. People who initiate a romantic relationship while traveling and then develop it at a distance might be good candidates for such a project as well.

Experiments could more easily address how people construct self-presentations in different media and for different purposes. They could also examine how even minimal group labels affect perceptions of attractiveness. As with any experimental work related to relationship formation, the lack of ecological validity is problematic; motivations and behavior may differ dramatically from a laboratory environment to a real-life situation with potential real-life partners. One solution to this problem could be an experimental speed-dating session with participants who are single and interested in meeting someone, lending ecological validity, but with instructions to a randomly selected subset of participants to interact with new contacts only online for two weeks following the session, introducing the desired experimental manipulation.

In a naturalistic online dating setting like the present study, interviews or questionnaires could focus on the processes of self-presentation and interpersonal perception. (Indeed, Ellison and colleagues [2006] have already published one excellent study along these lines.) They could also be more narrowly targeted on the potential mechanisms that might lead to higher levels of affinity online as compared to face-to-face. For example, questions could address the elements of hyperpersonal interaction, asking participants about their decisions to promote or downplay aspects of themselves or their perceptions of potential dates as having shared affiliations. Such an approach would not, of course, allow the rigorous causal inference facilitated by a good experimental design.

As in much social science research, multiple methods may be required to obtain inferentially rigorous and ecologically valid results.

5.5 Conclusion

This dissertation has presented a study of the early relationship formation process as conducted through a computer-mediated communication system. The results show that liking declines on average when online daters meet in person for the first time. Furthermore, pre-meeting judgments of an online date are not strongly associated with relationship duration, but they do predict intimacy and, to some degree, relationship satisfaction two weeks after the initial meeting. Numerous post-meeting judgments, on the other hand, are associated with duration, satisfaction, and intimacy.

As more and more of life is conducted online, it becomes increasingly important to understand how interpersonal processes function online and, especially, how they might operate differently through technologically mediated channels than in the familiar face-to-face environment. Moreover, even as computer-mediated communication systems provide a challenging new social context to study, the persistence and pervasive record-keeping of online environments also offers an unprecedented breadth and depth of information about social interactions that may ultimately inform our understanding of social life generally.

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Appendix A: Questionnaire contents

This appendix presents the contents of the questionnaires used in this study. On the web, these questionnaires appeared on multiple screens, and participants clicked "Next" to advance through each questionnaire. The numbering scheme for the questions reflects the pages in the web version: the first number before the period indicates on which page of the current questionnaire the question appeared, and the second number indicates the order of the question within the page. Note that these question numbers are unique identifiers only *within* questionnaires, not between them.

All sets of answers and scale responses included a "prefer not to answer" option, but I have omitted it here for brevity. Questions with multiple possible responses allowed participants to choose only one option unless otherwise noted. If they could choose only one option, HTML radio buttons were used. If choosing more than one was allowed, HTML checkboxes were used to permit multiple selections.

Q1: Intake questionnaire

Page 1

1.1 How old are you?

___ years

1.2 Are you:

- Male
- Female

1.3 About how long have you been using any kind of online dating system (including but not limited to [this dating site])?

- Less than a month
- Between one month and three months
- Between three months and six months
- Between six months and a year
- Between one year and two years
- Between two years and four years
- More than four years
- Prefer not to answer

Page 2

2.1 Please rate how interested you are in having the following types of relationships.

Likert-type scales from 0 = "Not at all interested" to 6 = "Very interested" for:

- Friendship
- Casual dating
- Serious dating
- Marriage / civil union

2.2 I have high self-esteem.

Likert-type scale from 1 = "Not very true of me" to 5 = "Very true of me."

Page 3

3.1 Please rate the extent to which you agree or disagree that the personality traits below describe *how you see yourself*.

Likert-type scales from –3 = "Strongly disagree" to 3 = "Strongly agree" for each of:

- Extraverted, enthusiastic.
- Critical, quarrelsome.
- Dependable, self-disciplined.
- Anxious, easily upset.
- Open to new experiences, complex.
- Reserved, quiet.
- Sympathetic, warm.
- Disorganized, careless.
- Calm, emotionally stable.
- Conventional, uncreative.
- Genuine, trustworthy.

Page 4

4.1 Please rate the extent to which you agree or disagree that the personality traits below describe *your ideal partner.*

Responses as in question 3.1.

Page 5

5.1 Think about how you typically behave in close romantic relationships. If you've never had a close romantic relationship, you can think about how you would likely behave in such a relationship. Please indicate how much you agree or disagree with the following statements.

Likert-type scales from –3 = "Strongly disagree" to 3 = "Strongly agree" for each of:

- It helps to turn to romantic partners in times of need.
- I usually discuss my problems and concerns with romantic partners.
- I talk things over with romantic partners.
- I find it easy to depend on romantic partners.
- I don't feel comfortable opening up to romantic partners.
- I prefer not to show romantic partners how I feel deep down.
- I often worry that romantic partners don't really care for me.
- I'm afraid that romantic partners may abandon me.
- I worry that romantic partners won't care about me as much as I care about them.
- I don't fully trust romantic partners.

Page 6

6.1 Please rate the extent to which you agree or disagree with the following statements.

Likert-type scales from –3 = "Strongly disagree" to 3 = "Strongly agree" for each of:

- Most people are basically honest.
- One can avoid falling into trouble by assuming that all people have a vicious streak.
- If anything, I trust others.
- Most people are basically good-natured and kind.
- You cannot be too cautious in dealing with others.
- Most people trust others.
- We do not always have to guard ourselves against being used by someone.
- Most people are trustworthy.
- If you are not careful enough, people will take advantage of you.
- It is safer to believe that everyone has the capacity to be malicious.

Page 7

7.1 How much do you agree with the following statements?

Likert-type scales from –3 = "Strongly disagree" to 3 = "Strongly agree" for:

- I am afraid to ask someone out.
- I trust the people with whom I interact on [the dating site].
- I am confident that when people meet me in person, they will see that I am the same as in my profile.
- I see people on Yahoo! Personals whom I might be interested in dating.
- I think that people will like me when they meet me in person.
- I believe that people present themselves fairly accurately in their Yahoo! Personals profiles.
- I am worried that when people meet me in person, they won't find me physically attractive.
- I feel like I am in control of whether or not I meet someone.

7.2 Think about all the ways you interact with people online — for example, through message boards, chat, online dating sites, games, blogs, and instant messaging. In general, how much do you trust the people with whom you interact online?

Likert-type scale from 0 = "Not at all" to 6 = "Very much."

7.3 Think about all the ways you interact with people face-to-face. In general, how much do you trust the people with whom you interact face-to-face?

Likert-type scale from 0 = "Not at all" to 6 = "Very much."

Q2: Pre-date questionnaire

Page 1

1.1 How often have you visited [the dating site] in the past 30 days?

- Every day
- About 4 to 5 times per week
- About 2 to 3 times per week
- About once a week
- Some, but less than once a week
- Not at all
- Prefer not to answer

1.2 Have you recently started communicating with another [dating site] user whom you **have not yet met in person** but **intend to meet soon**?

- Yes
- No

If participant does not have a person of interest, end questionnaire.

Page 2

2.1 What is the first name of the person with whom you have been communicating?

_____

The answer given above is inserted into the text of later questions where indicated by "[your contact]."

2.2 How did you first find this person?

- I searched [the dating site] and contacted him/her
- This person contacted me first
- [The dating site] matched me with this person and I contacted him/her
- A friend sent me this person's profile and I contacted him/her
- Other: _____

2.3 Did you know this person in any other context before you got in touch on [the dating site]? Please check all that apply, or leave blank if none apply.

Multiple choices permitted.

- I've met him/her face to face
- I've communicated with him/her online

- I've seen his/her profile elsewhere online
- Other: _____

2.4 How have you communicated with this person since you got in touch on [the dating site]?

Multiple choices permitted.

- I've met him/her face to face
- I've communicated with him/her online
- I've seen his/her profile elsewhere online
- Other: _____

If participant indicates that s/he has already met his/her contact, end this questionnaire and begin retrospective questionnaire immediately.

Page 3

3.1 When do you plan to meet [your contact] face-to-face?

- Within the next several days
- Within the next week
- Within the next two weeks
- Within the next month
- Want to meet, but not sure when
- Don't intend to meet

If participant does not intend to meet his/her contact, end questionnaire.

Page 4

Instructions: Based on what you currently know about [your contact], please select the response for each question that most closely matches your feelings about him or her.

4.1 On the whole, how attracted are you to [your contact]?

Likert-type scale from 0 = "Not at all" to 6 = "Very much."

4.2 How much do you have in common with [your contact]?

Likert-type scale from 0 = "Nothing" to 6 = "Very much."

4.3 How close is [your contact] to your ideal for a partner?

Likert-type scale from 0 = "Not at all" to 6 = "Very much."

4.4 How well have you gotten to know [your contact]?

Likert-type scale from 0 = "Not at all well" to 6 = "Very well."

Page 5

Instructions: Based on what you currently know about [your contact], please select the response for each question that most closely matches your feelings about him or her.

5.1 How much is [your contact] someone you can see yourself:

Likert-type scales from 0 = "Not at all" to 6 = "Very much" for each of:

- Being friends with?
- Dating casually?
- Dating seriously?
- Possibly something more?

Page 6

6.1 Please rate the following aspects of [your contact] in terms of how much they appeal to you.

Likert-type scales from –3 = "Very unappealing" to 3 = "Very appealing" for each of:

- [Your contact]'s personality
- [Your contact]'s physical appearance
- [Your contact]'s age
- [Your contact]'s ethnicity
- [Your contact]'s religious faith
- [Your contact]'s height
- [Your contact]'s weight
- [Your contact]'s living situation
- [Your contact]'s smoking habits
- [Your contact]'s drinking habits
- [Your contact]'s interests
- [Your contact]'s style of humor

Page 7

Instructions: For the questions **on this page only**, please think about how [your contact] probably sees you.

7.1 How appealing do you think the following aspects of <u>you</u> are to [your contact]?

Likert-type scales from –3 = "Very unappealing" to 3 = "Very appealing" for each of:

- Your physical appearance
- Your personality

- Your interests

7.2 How much do you think [your contact] thinks the two of you have in common?

Likert-type scale from 0 = "Nothing" to 6 = "Very much," with "Cannot tell" option

7.3 How close do you think you are to [your contact]'s ideal for a partner?

Likert-type scale from 0 = "Not at all" to 6 = "Very much," with "Cannot tell" option

7.4 On the whole, how attracted do you think [your contact] is to you?

Likert-type scale from 0 = "Not at all" to 6 = "Very much," with "Cannot tell" option

Page 8

Instructions: Based on what you currently know about [your contact], please select the response for each question that most closely matches your feelings about him or her.

8.1 How excited are you to meet [your contact]?

Likert-type scale from 0 = "Not at all" to 6 = "Very much."

8.2 How likely do you think it is that you will want to see [your contact] again after you meet for the first time?

Likert-type scale from 0 = "Not at all likely" to 6 = "Very likely."

8.3 How accurately do you think [your contact] is presenting himself or herself?

Likert-type scale from 0 = "Not at all" to 6 = "Very much."

8.4 What, if anything, about [your contact] makes you especially want to meet him/her?

Free response.

8.5 What, if anything, about [your contact]'s profile concerns you?

Free response.

Page 9

Instructions: Based on what you currently know about [your contact], please select the response for each question that most closely matches your feelings about him or her.

9.1 In your own words, how would you describe [your contact]'s personality?

Free response.

9.2 Please rate the extent to which you agree or disagree that the personality traits below describe [your contact].

Likert-type scales from –3 = “Strongly disagree” to 3 = “Strongly agree” for each of:

- Extraverted, enthusiastic.
- Critical, quarrelsome.
- Dependable, self-disciplined.
- Anxious, easily upset.
- Open to new experiences, complex.
- Reserved, quiet.
- Sympathetic, warm.
- Disorganized, careless.
- Calm, emotionally stable.
- Conventional, uncreative.
- Genuine, trustworthy.

9.3 How similar do you think [your contact]’s personality is to your own?

Likert-type scale from 0 = “Not at all” to 6 = “Very much.”

Q3: Post-date questionnaire

Page 1

Instructions: In the last questionnaire, you told us you were communicating with **[your contact]**. In this questionnaire, we're going to ask you about your experiences with **[your contact]** since then.

1.1 How have you communicated with [your contact] so far?

Multiple choices permitted.

- [Dating site] icebreakers
- [Dating site] messages
- Email messages outside [the dating site]
- Instant messaging
- Text messaging
- Telephone
- Video chat
- In person
- Other: _____

If participant indicates that s/he has not met his/her contact in person, proceed to Page 2a. If participant has met his/her contact, proceed to Page 2.

Page 2a (not met in person)

2.1a When do you plan to meet this person face-to-face?

- Within the next several days
- Within the next week
- Within the next two weeks
- Within the next month
- Want to meet, but not sure when
- No plans to meet

End questionnaire. Reschedule Q3 as per 2.1a response unless participant has no plans to meet. In that case, s/he will receive another invitation to complete Q2 about another potential date in approximately one week.

Page 2 (met in person)

Instructions: Based on what you currently know about [your contact] now that you've met, please select the response for each question that most closely matches your feelings about him or her.

2.1 On the whole, how attracted are you to [your contact]?

Likert-type scale from 0 = "Not at all" to 6 = "Very much."

2.2 How much do you have in common with [your contact]?

Likert-type scale from 0 = "Nothing" to 6 = "Very much."

2.3 How close is [your contact] to your ideal for a partner?

Likert-type scale from 0 = "Not at all" to 6 = "Very much."

2.4 How well have you gotten to know [your contact]?

Likert-type scale from 0 = "Not at all well" to 6 = "Very well."

Page 3

Instructions: Based on what you currently know about [your contact] now that you've met, please select the response for each question that most closely matches your feelings about him or her.

3.1 In your own words, how did your first meeting or date with [your contact] go?

Free response.

3.2 How much is [your contact] someone you can see yourself:

Likert-type scales from 0 = "Not at all" to 6 = "Very much" for each of:

- Being friends with?
- Dating casually?
- Dating seriously?
- Possibly something more?

Page 4

4.1 Please rate the following aspects of [your contact] in terms of how much they appeal to you.

Likert-type scales from –3 = "Very unappealing" to 3 = "Very appealing" for each of:

- [Your contact]'s personality
- [Your contact]'s physical appearance
- [Your contact]'s age
- [Your contact]'s ethnicity

- [Your contact]'s religious faith
- [Your contact]'s height
- [Your contact]'s weight
- [Your contact]'s living situation
- [Your contact]'s smoking habits
- [Your contact]'s drinking habits
- [Your contact]'s interests
- [Your contact]'s style of humor

Page 5

Instructions: For the questions **on this page only**, please think about how [your contact] probably sees you.

5.1 How appealing do you think the following aspects of you are to [your contact]?

Likert-type scales from –3 = "Very unappealing" to 3 = "Very appealing" for each of:

- Your physical appearance
- Your personality
- Your interests

5.2 How much do you think [your contact] thinks the two of you have in common?

Likert-type scale from 0 = "Nothing" to 6 = "Very much," with "Cannot tell" option

5.3 How close do you think you are to [your contact]'s ideal for a partner?

Likert-type scale from 0 = "Not at all" to 6 = "Very much," with "Cannot tell" option

5.4 On the whole, how attracted do you think [your contact] is to you?

Likert-type scale from 0 = "Not at all" to 6 = "Very much," with "Cannot tell" option

Page 6

6.1 How accurately do you think [your contact] presented himself or herself in the following situations?

Likert-type scales from 0 = "Not at all accurately" to 6 = "Very accurately" for all communication modalities participant indicated s/he had used with his/her date in question 1.1.

Page 7

7.1 Please rate how much you agree with the following statements about the time you spent in person with [your contact]:

Likert-type scales from –3 = "Strongly disagree" to 3 = "Strongly agree" for each of:

- The interaction was pleasant.
- I shared something personal or private during this interaction.
- [My contact] shared something personal or private.
- I listened attentively during the interaction.
- [My contact] expressed a need, wish, or want.
- I expressed a need, wish, or want.
- This interaction was intimate.
- We quarreled during this interaction.
- [My contact] expressed positive feelings towards me.
- I expressed positive feelings toward [my contact].
- [My contact] was critical of me.
- I was critical of [my contact].
- I believe [my contact] understood me.
- I believe I understood [my contact].
- [My contact] told me about his/her feelings or emotions.
- I told [my contact] about my feelings or emotions.

Page 8

Instructions: Based on what you currently know about [your contact], please select the response for each question that most closely matches your feelings about him or her.

9.1 In your own words, how would you describe [your contact]'s personality?

Free response.

9.2 Please rate the extent to which you agree or disagree that the personality traits below describe [your contact].

Likert-type scales from –3 = "Strongly disagree" to 3 = "Strongly agree" for each of:

- Extraverted, enthusiastic.
- Critical, quarrelsome.
- Dependable, self-disciplined.
- Anxious, easily upset.
- Open to new experiences, complex.
- Reserved, quiet.
- Sympathetic, warm.
- Disorganized, careless.

- Calm, emotionally stable.
- Conventional, uncreative.
- Genuine, trustworthy.

9.3 How similar do you think [your contact]'s personality is to your own?

Likert-type scale from 0 = "Not at all" to 6 = "Very much."

QL: Longitudinal questionnaire

Page 1

Instructions: In your previous questionnaires, you told us about your experiences with [your contact]. Now we'd like to ask you a bit more about how things have been going since then.

1.1 Are you still dating [your contact]?

- Yes
- No

If participant indicates that s/he is not still dating his/her contact, proceed to Page 2a. If they are still dating, proceed to Page 2.

Page 2a

2.1a Why do you think your relationship with [your contact] ended?

Free response.

End questionnaire.

Page 2

Instructions: Great, thank you. Now we'd like to ask you a few questions about your relationship with [your contact].

2.1 Are you dating [your contact] *exclusively*?

- Yes
- No

2.2 How much do you like [your contact]?

Likert-type scale from 0 = "Not at all" to 6 = "Very much."

2.3 How much do you love [your contact]?

Likert-type scale from 0 = "Not at all" to 6 = "Very much."

Page 3

3.1 Please rate how much you agree with the following statements about [your contact].

Likert-type scales from –3 = "Strongly disagree" to 3 = "Strongly agree" for each of:

- This person meets my needs.

- In general, I am satisfied with my relationship with this person.
- My relationship with this person is good compared to most.
- I wish I hadn't gotten involved with this person.
- My relationship with this person has met my original expectations.
- There are many problems in my relationship with this person.

Page 4

4.1 Please rate how much you agree with the following statements about the last time you saw [your contact] in person.

Likert-type scales from –3 = "Strongly disagree" to 3 = "Strongly agree" for each of:

- The interaction was pleasant.
- I shared something personal or private during this interaction.
- [My contact] shared something personal or private.
- I listened attentively during the interaction.
- [My contact] expressed a need, wish, or want.
- I expressed a need, wish, or want.
- This interaction was intimate.
- We quarreled during this interaction.
- [My contact] expressed positive feelings towards me.
- I expressed positive feelings toward [my contact].
- [My contact] was critical of me.
- I was critical of [my contact].
- I believe [my contact] understood me.
- I believe I understood [my contact].
- [My contact] told me about his/her feelings or emotions.
- I told [my contact] about my feelings or emotions.

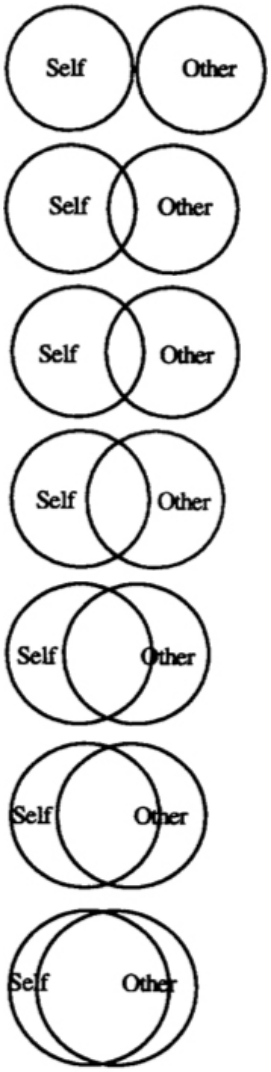
Page 5

5.1 How much do you trust that [your contact] will:

Likert-type scales from 0 = "Not at all" to 6 = "Very much" for each of:

- Not cheat on me
- Not hurt me
- Be who he/she says he/she is
- Be supportive of me
- Respects my needs and wishes

5.2 Please select the picture below that best describes your relationship with [your contact].



Page 6

6.1 How many of [your contact]'s friends have you met?

- None of them
- A few of them
- Many of them
- All of them

6.2 How many of [your contact]'s family members have you met?

- None of them
- A few of them
- Many of them

- All of them

6.3 When you're not together, how often do you think about [your contact]?

- Not at all
- Rarely
- Sometimes
- Often
- All the time

Page 7

7.1 On average, how many days per week do you:

Eight-point scale from 0 days to 7 days.

- Communicate with [your contact] by any means (email, phone, IM, face-to-face, etc.)?
- See [your contact] in person?

7.2 How important is [your contact] in your life?

Likert-type scale from 0 = "Not at all" to 6 = "Very much."

Page 8

8.1 Has any of the following events occurred since the last time you filled out a questionnaire with us? (Please check all that apply.)

Multiple choices permitted.

- Moving in with [your contact]
- Getting a pet with [your contact]
- Getting engaged to [your contact]
- Combining finances with [your contact]
- Meeting [your contact]'s parents
- None of these events has occurred

8.2 Have there been any other major changes in your relationship with [your contact], good or bad, since the last time you filled out a questionnaire with us?

Free response.

8.3 Is there anything else you'd like to tell us?

Free response.

QR: Retrospective questionnaire

The retrospective questionnaire, QR, asks participants to think back about their impressions of someone they got to know through the dating site before and after they met their dates in person. The first question asks whether the participant has ever met someone through the site. If not, s/he receives an alternate set of questions, QRa, described below. Participants who have met an online date in person receive the main QR questions.

The main questions come from the pre-date and post-date questionnaires (Q2 and Q3), with the tense changed to make sense for participants who have already met face-to-face the person they are describing. For example, question 4.1 from Q2, "On the whole, how attracted are you to [your contact]?", becomes "On the whole, how attracted were you to [your contact] before you met face-to-face?" in QR. For brevity, I do not reproduce most of the questions from QR here, since it duplicates the contents of Q2 and Q3 aside from tense. However, in this section, I do include the one additional page of questions unique to QR.

Page 1

1.1 How often have you visited [the dating site] in the past 30 days?

- Every day
- About 4 to 5 times per week
- About 2 to 3 times per week
- About once a week
- Some, but less than once a week
- Not at all
- Prefer not to answer

1.2 Have you ever met anyone from [the dating site] face-to-face?

- Yes
- No

If yes, proceed to page 2 of this questionnaire. If no, divert to page 2 of QRa.

Pages 2–16

Questions from Q2 and Q3 with tense modified as appropriate.

Page 17

17.1 How many times have you seen [your contact] in person since the first time you met face-to-face?

- More than 10 times
- 5 to 10 times
- 3 or 4 times
- 1 or 2 times
- Not at all since we first met

17.2 Would you consider yourself now to be in a relationship with [your contact]?

- Yes
- No

17.3 How much have you and [your contact] discussed how much the impressions of each other that you formed online and those you formed face-to-face matched?

- A lot
- A little
- Not at all

QRa: Never met an online date in person

Page 1

As in QR above.

Page 2

2.1 On average, how many dates do you go on per month? (Please include all dates, not just dates with people you met through [the dating site].)

___

2.2 How interested are you in meeting people through [the dating site]?

Likert-type scale from 0 = "Not at all" to 6 = "Very much."

2.3 In general, how interested are you in meeting people to date or have a relationship with?

Likert-type scale from 0 = "Not at all" to 6 = "Very much."

2.4 I am satisfied with [the dating site] overall.

Likert-type scale from –3 = "Strongly disagree" to 3 = "Strongly agree."

2.5 I am satisfied with the pool of people who post their profiles on [the dating site].

Likert-type scale from –3 = "Strongly disagree" to 3 = "Strongly agree."

Page 3

3.1 Earlier you indicated that you have not yet met anyone face-to-face through [the dating site]. In the space below, please briefly describe some reasons why you think this is the case.

Free response.

3.2 Please rate the degree to which each of the following factors plays a role in why you have not yet met someone face-to-face.

Likert-type scales from 0 = "Not at all" to 6 = "Very much" for each of:

- My compatibility with the people I have seen online
- Characteristics of my own profile (e.g., things that others might find unattractive)
- My own effort — how much I am actively trying to meet someone
- How busy I am in my life (e.g., with work, friends, etc.)
- My own self-confidence
- My own level of attractiveness
- The people I contact do not respond to me

- The people who contact me are not the kind of people I am interested in meeting

Page 4

4.1 How much do you agree with the following statements?

Likert-type scales from –3 = "Strongly disagree" to 3 = "Strongly agree" for each of:

- I am afraid to ask someone out.
- I trust the people with whom I interact on [the dating site].
- I am confident that when people meet me in person, they will see that I am the same as in my profile.
- I see people on [the dating site] whom I might be interested in dating.
- I think that people will like me when they meet me in person.
- I believe that people present themselves fairly accurately in their [dating site] profiles.
- I am worried that when people meet me in person, they won't find me physically attractive.
- I feel like I am in control of whether or not I meet someone.

4.2 Think about all the ways you interact with people online — for example, through message boards, chat, online dating sites, games, blogs, and instant messaging. In general, how much do you trust the people with whom you interact online?

Likert-type scale from 0 = "Not at all" to 6 = "Very much."

4.3 Think about all the ways you interact with people face-to-face. In general, how much do you trust the people with whom you interact face-to-face?

Likert-type scale from 0 = "Not at all" to 6 = "Very much."

Appendix B: Tables

Table B1. Participant and site-wide demographics

	ALL HETERO. RESPONDENTS	RETROSPECTIVE RESPONDENTS	CONTEMP. RESPONDENTS	HETERO. SITE POP.	U.S. POP.
SEX AND SEX SOUGHT					
Female	47.2% (1,407)	59.8% (408)	57.4% (101)	36.6%	50.9%[†]
Male	52.8% (1,577)	40.2% (274)	42.6% (75)	63.4%	49.1%[†]
AGE					
Minimum	18 years	19 years	23 years	17 yrs.	
Mean	43.8 years	45.1 years	45.9 years	40.5 yrs.	36.6 yrs.[†]
Median	44 years	46 years	46 years	40 yrs.	
Maximum	76 years	76 years	70 years	103 yrs.	
SD	10.5 years	10.6 years	9.8 years	11.7 yrs.	
MARITAL STATUS					
Single (never married)	36.0% (1,075)	31.1% (212)	22.7% (40)	36.7%	30.0%[††]
Divorced	49.7% (1,483)	57.5% (392)	61.4% (108)	41.9%	9.7%[††]
Separated	5.5% (164)	4.3% (29)	6.8% (12)	6.5%	2.3%[††]
Widowed	4.7% (140)	5.0% (34)	5.7% (10)	4.0%	5.9%[††]
No response	4.1% (122)	2.2% (15)	3.4% (6)	10.9%	
RACE/ETHNICITY					
African-American	13.4% (399)	10.3% (70)	7.4% (13)	12.2%	12.2%*
Asian	1.9% (56)	1.0% (7)	0.6% (1)	2.4%	4.2%*
Caucasian	73.4% (2,190)	81.8% (558)	83.0% (146)	72.1%	67.3%*
East Indian	0.3% (10)	0.4% (3)	0.6% (1)	0.3%	
Hispanic/Latino	5.8% (172)	3.7% (25)	4.0% (7)	7.2%	14.2%*
Inter-racial	1.5% (46)	1.2% (8)	2.3% (4)	1.4%	
Middle Eastern	0.1% (4)	0.1% (1)	0.0% (0)	0.3%	
Native American	1.0% (30)	0.6% (4)	0.0% (0)	1.0%	0.8%*
Other	0.9% (27)	0.0% (0)	0.6% (1)	1.4%	
Pacific Islander	0.2% (6)	0.1% (1)	0.0% (0)	0.4%	0.1%*
No response	1.5% (44)	0.7% (5)	1.7% (3)	1.2%	
EDUCATION					
Some high school	0.7% (20)	0.1% (1)	0.0% (0)	2.8%	9.1%[††]
High school grad	7.7% (233)	5.3% (36)	10.2% (18)	18.9%	30.9%[††]
Some college	36.7% (1,115)	30.6% (209)	27.8% (49)	39.1%	28.0%[††]
College graduate	33.6% (1,002)	35.6% (243)	36.9% (65)	25.7%	17.7%[††]
Post-graduate	17.3% (499)	25.2% (172)	19.9% (35)	9.5%	9.3%[††]
No response	4.0% (116)	3.1% (21)	5.1% (9)	4.0%	

Notes on Table B1

Exact counts are given in parentheses.

Heterosexual site population figures gathered from profiles on the site, not all of which were available for download, though it is believed that the unavailability was not systematically related to any demographic characteristics. See Chapter 3 for a discussion.

Sources:

* US Census Bureau: 2004 American Community Survey
(N.B. Hispanic/Latino in the US Census is not a separate race category,
but rather an ethnicity designation that a person of any race can choose.)

† US Census Bureau: 2008 Current Population Survey

†† US Census Bureau: 2009 Current Population Survey

Table B2. Intercorrelations between perceptions of date before and after meeting face-to-face

	CONTEMPORANEOUS				RETROSPECTIVE			
	r	***t***	***df***	***p***	***r***	***t***	***df***	***p***
Overall attraction	.36	4.91	164	< .001 ◆◆◆	.42	11.72	660	< .001 ◆◆◆
How much in common	.39	5.51	165	< .001 ◆◆◆	.36	10.04	660	< .001 ◆◆◆
How close to ideal	.34	4.46	154	< .001 ◆◆◆	.43	12.01	653	< .001 ◆◆◆
How well gotten to know	.42	5.93	168	< .001 ◆◆◆	.32	8.53	657	< .001 ◆◆◆
Appeal of appearance	.36	4.81	157	< .001 ◆◆◆	.55	16.78	640	< .001 ◆◆◆
Appeal of personality	.19	2.32	150	.022 ◆	.43	12.10	646	< .001 ◆◆◆
Date's personality's corr. with ideal	.28	3.09	109	.003 ◆◆	.56	15.54	518	< .001 ◆◆◆
Perceived personality similarity	.35	4.66	158	< .001 ◆◆◆	.47	13.30	631	< .001 ◆◆◆
Big 5 social-desirability composite	.38	4.55	125	< .001 ◆◆◆	.67	21.51	579	< .001 ◆◆◆
Date's openness	.42	5.54	142	< .001 ◆◆◆	.64	20.80	612	< .001 ◆◆◆
Date's conscientiousness	.27	3.35	143	.001 ◆◆	.60	18.73	612	< .001 ◆◆◆
Date's extraversion	.43	5.84	150	< .001 ◆◆◆	.71	25.18	617	< .001 ◆◆◆
Date's agreeableness	.39	5.26	154	< .001 ◆◆◆	.64	20.62	611	< .001 ◆◆◆
Date's neuroticism	.35	4.61	148	< .001 ◆◆◆	.64	20.37	614	< .001 ◆◆◆
Date's genuine/trustworthiness	.42	5.77	152	< .001 ◆◆◆	.51	14.78	612	< .001 ◆◆◆
Interest in friendship	.37	5.17	164	< .001 ◆◆◆	.44	12.41	657	< .001 ◆◆◆
Interest in casual dating	.34	4.63	163	< .001 ◆◆◆	.42	11.59	644	< .001 ◆◆◆
Interest in serious dating	.40	5.61	162	< .001 ◆◆◆	.46	13.00	647	< .001 ◆◆◆
Interest in "something more"	.42	5.78	159	< .001 ◆◆◆	.45	12.63	640	< .001 ◆◆◆
Date's overall attraction to *P*†	.47	5.85	124	< .001 ◆◆◆	.40	10.40	563	< .001 ◆◆◆
How close *P* is to date's ideal†	.44	4.62	89	< .001 ◆◆◆	.52	12.98	456	< .001 ◆◆◆
How much date thinks in common†	.28	3.27	122	.001 ◆◆	.45	11.36	503	< .001 ◆◆◆
Appeal of *P*'s appearance to date†	.48	6.49	138	< .001 ◆◆◆	.48	13.38	582	< .001 ◆◆◆
Appeal of *P*'s personality to date†	.29	3.60	141	< .001 ◆◆◆	.41	11.05	591	< .001 ◆◆◆

◆ $p < .05$ ◆◆ $p < .01$ ◆◆◆ $p < .001$

T-tests; significant differences ($p < .05$) in gray.

† As estimated by respondent (*P*)

Table B3. Pre-date and post-date ratings, contemporaneous respondents

			CONTEMPORANEOUS					
			BEFORE MEETING	**AFTER MEETING**				
	P's sex	*n*	*M* (*SD*)	*M* (*SD*)	*d*	*t*	*df*	*p*
Overall attraction	M	70	4.42 (1.02)	3.89 (1.56)	–.40	–2.73	69	.008 ◆◆
	F	96	4.08 (0.99)	3.39 (1.76)	–.49	–3.98	95	< .001 ◆◆◆
How close to ideal	M	66	3.96 (1.19)	3.23 (1.62)	–.52	–3.53	65	< .001 ◆◆◆
	F	90	3.69 (1.21)	2.93 (1.67)	–.53	–4.01	89	< .001 ◆◆◆
How much in common	M	69	4.14 (1.01)	3.76 (1.38)	–.31	–2.13	68	.037 ◆
	F	98	4.38 (1.09)	3.72 (1.52)	–.50	–4.06	97	< .001 ◆◆◆
How well gotten to know	M	71	2.97 (1.35)	3.66 (1.31)	.52	4.63	70	< .001 ◆◆◆
	F	99	2.94 (1.37)	3.25 (1.41)	.22	1.96	98	.052
Appeal of date's appearance	M	69	1.87 (1.12)	1.41 (1.54)	–.35	–2.41	68	.018 ◆
	F	90	1.34 (1.20)	1.09 (1.67)	–.17	–1.33	89	.188
Appeal of date's personality	M	66	1.94 (0.88)	1.60 (1.34)	–.30	–1.97	65	.053
	F	86	1.97 (0.97)	1.29 (1.63)	–.50	–3.11	85	.003 ◆◆
Ideal partner - actual date personality trait correlation	M	47	.68 (0.27)	.57 (0.44)	0.29	0.82	46	.414
	F	64	.64 (0.28)	.56 (0.40)	0.24	1.88	63	.064
Appeal of date's height	M	69	1.59 (1.26)	1.71 (1.18)	.10	0.45	68	.655
	F	94	1.56 (1.38)	1.76 (1.49)	.14	0.89	93	.374
Appeal of date's weight	M	62	1.49 (1.37)	1.18 (1.66)	–.21	–1.34	61	.187
	F	90	1.38 (1.35)	1.52 (1.62)	.10	0.52	89	.602
Interest in friendship	M	71	4.62 (1.19)	4.38 (1.68)	–.17	–1.56	70	.123
	F	95	4.82 (1.28)	4.28 (1.97)	–.33	–2.39	94	.019 ◆
Interest in casual dating	M	71	4.56 (1.26)	3.47 (2.05)	–.64	–4.61	70	< .001 ◆◆◆
	F	94	4.14 (1.52)	3.39 (2.07)	–.41	–2.92	93	.004 ◆◆
Interest in serious dating	M	71	4.18 (1.28)	2.96 (2.14)	–.70	–5.01	70	< .001 ◆◆◆
	F	93	3.83 (1.56)	2.76 (2.18)	–.56	–4.65	92	< .001 ◆◆◆
Interest in "something more"	M	70	4.10 (1.45)	2.88 (2.24)	–.65	–4.77	69	< .001 ◆◆◆
	F	91	3.64 (1.71)	2.57 (2.21)	–.54	–4.30	90	< .001 ◆◆◆

◆ $p < .05$ ◆◆ $p < .01$ ◆◆◆ $p < .001$

Paired t-tests, significant differences ($p < .05$) in gray.

(Table continues on the next page.)

Table B3 (continued). Pre-date and post-date ratings, contemporaneous respondents

		CONTEMPORANEOUS						
			BEFORE MEETING	**AFTER MEETING**				
	P's sex	*n*	*M* (*SD*)	*M* (*SD*)	*d*	*t*	*df*	*p*
Date's overall attraction to *P* (according to *P*)	M	51	4.45 (1.00)	4.14 (1.46)	–.25	–1.11	50	.274
	F	75	4.71 (0.98)	4.38 (1.67)	–.24	–1.89	74	.062
P close to date's ideal (according to *P*)	M	43	4.32 (0.91)	3.68 (1.55)	–.50	–2.90	42	.006 ◆◆
	F	48	4.44 (1.07)	3.55 (1.81)	–.58	–3.34	47	.002 ◆◆
How much date thinks in common (according to *P*)	M	55	4.60 (0.95)	3.97 (1.34)	–.54	–3.47	54	.001 ◆◆
	F	69	4.72 (0.91)	4.14 (1.50)	–.46	–3.35	68	.001 ◆◆
Appeal of *P*'s appearance to date (according to *P*)	M	57	1.64 (1.02)	1.58 (1.05)	–.06	–1.10	56	.278
	F	83	1.91 (1.11)	1.79 (1.31)	–.10	–0.53	82	.599
Appeal of *P*'s personality to date (according to *P*)	M	59	2.16 (0.86)	1.97 (0.99)	–.20	–1.09	58	.280
	F	84	2.25 (0.74)	2.09 (1.03)	–.19	–1.78	83	.079
Personality similarity	M	68	3.96 (1.28)	3.57 (1.68)	–.26	–1.92	67	.059
	F	92	3.92 (1.25)	3.38 (1.72)	–.36	–2.52	91	.013 ◆
Big 5 composite	M	52	1.03 (0.73)	1.09 (0.93)	.07	0.24	51	.810
	F	75	1.11 (0.80)	1.14 (0.91)	.04	0.07	74	.941
Openness	M	59	1.03 (1.02)	0.82 (1.21)	–.19	–1.02	58	.310
	F	85	1.03 (1.22)	0.68 (1.42)	–.27	–2.54	84	.012 ◆
Conscientiousness	M	62	1.16 (1.06)	1.52 (1.42)	.29	2.43	61	.018 ◆
	F	83	1.30 (1.11)	1.52 (1.37)	.17	1.63	82	.107
Extraversion	M	60	0.80 (1.27)	0.70 (1.23)	–.08	–0.71	59	.481
	F	92	0.74 (1.44)	0.60 (1.70)	–.09	–0.95	91	.342
Agreeableness	M	65	1.34 (1.03)	1.37 (1.33)	.03	0.20	64	.845
	F	91	1.48 (1.04)	1.45 (1.24)	–.02	–0.04	90	.967
Neuroticism	M	63	–0.98 (1.25)	–1.01 (1.30)	–.03	–0.67	62	.503
	F	87	–1.22 (1.12)	–1.27 (1.30)	–.04	–0.33	86	.743
Genuine, trustworthy	M	64	1.51 (1.20)	1.44 (1.52)	–.05	–0.51	63	.611
	F	90	1.28 (1.20)	1.10 (1.59)	–.12	–1.16	89	.248

◆ $p < .05$ ◆◆ $p < .01$ ◆◆◆ $p < .001$

Paired t-tests; significant differences ($p < .05$) in gray.

Table B4. Pre-date and post-date ratings, retrospective respondents

			RETROSPECTIVE					
			BEFORE MEETING	**AFTER MEETING**				
	P's sex	*n*	*M* (*SD*)	*M* (*SD*)	*d*	*t*	*df*	*p*
Overall attraction	M	263	4.46 (1.04)	4.32 (1.62)	–.10	–1.53	262	.126
	F	399	4.19 (1.27)	3.94 (1.92)	–.15	–2.95	398	.003 ◆◆
How close to ideal	M	256	3.68 (1.11)	3.42 (1.71)	–.18	–2.99	255	.003 ◆◆
	F	399	3.78 (1.33)	3.25 (2.00)	–.31	–5.70	398	< .001 ◆◆◆
How much in common	M	263	4.11 (1.02)	3.93 (1.54)	–.13	–1.85	262	.065
	F	399	4.31 (1.17)	3.94 (1.70)	–.25	–4.44	398	< .001 ◆◆◆
How well gotten to know	M	264	3.52 (1.38)	4.03 (1.81)	.32	4.23	263	< .001 ◆◆◆
	F	395	3.50 (1.39)	3.87 (1.86)	.23	3.60	394	< .001 ◆◆
Appeal of date's appearance	M	258	1.61 (1.23)	1.41 (1.71)	–.14	–2.29	257	.023 ◆
	F	384	1.42 (1.34)	1.19 (1.75)	–.15	–2.82	383	.005 ◆◆
Appeal of date's personality	M	254	1.74 (1.02)	1.59 (1.52)	–.12	–1.60	253	.110
	F	394	1.76 (1.14)	1.36 (1.70)	–.28	–5.17	393	< .001 ◆◆◆
Ideal partner - actual date personality trait correlation	M	211	.58 (0.37)	.47 (0.48)	–.26	–4.12	210	< .001 ◆◆◆
	F	309	.65 (0.31)	.50 (0.43)	–.38	–6.59	308	< .001 ◆◆◆
Appeal of date's height	M	253	1.51 (1.20)	1.72 (1.26)	.17	3.13	252	.002 ◆◆
	F	386	1.62 (1.35)	1.53 (1.60)	–.06	–1.88	385	.061
Appeal of date's weight	M	247	1.38 (1.41)	1.20 (1.75)	–.11	–1.99	246	.048 ◆
	F	382	1.52 (1.25)	1.32 (1.63)	–.14	–2.86	381	.005 ◆◆
Interest in friendship	M	263	4.33 (1.35)	4.34 (1.78)	.00	0.08	262	.939
	F	396	4.51 (1.28)	4.33 (1.91)	–.11	–1.98	395	.049 ◆
Interest in casual dating	M	259	4.19 (1.34)	3.82 (1.98)	–.22	–3.77	258	< .001 ◆◆◆
	F	387	4.03 (1.41)	3.59 (2.13)	–.25	–4.33	386	< .001 ◆◆◆
Interest in serious dating	M	259	3.82 (1.49)	3.43 (2.20)	–.21	–3.26	258	.001 ◆◆
	F	390	3.83 (1.58)	3.16 (2.38)	–.33	–6.12	389	< .001 ◆◆◆
Interest in "something more"	M	258	3.72 (1.59)	3.24 (2.27)	–.25	–3.73	257	< .001 ◆◆◆
	F	384	3.64 (1.69)	2.92 (2.46)	–.34	–6.46	383	< .001 ◆◆◆

◆ $p < .05$ ◆◆ $p < .01$ ◆◆◆ $p < .001$

Paired t-tests; significant differences ($p < .05$) in gray.

(Table continues on the next page.)

Table B4 (continued). Pre-date and post-date ratings, retrospective respondents

RETROSPECTIVE

	P's sex	*n*	BEFORE MEETING *M* (*SD*)	AFTER MEETING *M* (*SD*)	*d*	*t*	*df*	*p*
Date's overall attraction to *P* (according to *P*)	M	218	4.46 (1.04)	4.33 (1.58)	–.09	–0.37	217	.710
	F	347	4.78 (1.05)	4.76 (1.57)	–.02	–0.46	346	.646
P close to date's ideal (according to *P*)	M	184	4.04 (1.16)	3.91 (1.66)	.10	0.41	183	.683
	F	274	4.47 (1.15)	4.11 (1.75)	–.25	–2.33	273	.021 ◆
How much date thinks in common (according to *P*)	M	198	4.29 (1.01)	4.18 (1.54)	–.08	–0.89	197	.376
	F	307	4.66 (1.06)	4.48 (1.56)	–.14	–1.64	306	.103
Appeal of *P*'s appearance to date (according to *P*)	M	232	1.63 (1.09)	1.68 (1.26)	.04	0.75	231	.454
	F	352	2.00 (0.96)	2.03 (1.19)	.02	0.34	351	.734
Appeal of *P*'s personality to date (according to *P*)	M	238	1.90 (0.94)	1.83 (1.24)	–.06	–0.46	237	.649
	F	355	2.14 (0.86)	2.08 (1.09)	–.07	–1.19	354	.237
Personality similarity	M	247	4.02 (1.14)	3.51 (1.65)	–.36	–5.37	246	< .001 ◆◆◆
	F	386	4.04 (1.30)	3.33 (1.84)	–.45	–8.63	385	< .001 ◆◆◆
Big 5 composite	M	231	.97 (0.81)	.90 (1.05)	–.08	–1.67	230	.097
	F	350	1.22 (0.85)	.97 (1.01)	–.26	–5.33	349	< .001 ◆◆◆
Openness	M	242	.99 (1.08)	.83 (1.37)	–.13	–2.75	241	.006 ◆◆
	F	372	1.04 (1.22)	.77 (1.39)	–.20	–4.21	371	< .001 ◆◆◆
Conscientiousness	M	242	1.17 (1.16)	1.08 (1.40)	–.07	–1.13	241	.261
	F	372	1.48 (1.15)	1.42 (1.31)	–.06	–1.30	371	.194
Extraversion	M	243	.78 (1.22)	.79 (1.41)	.01	0.34	242	.735
	F	376	.88 (1.47)	.65 (1.60)	–.15	–3.59	375	< .001 ◆◆◆
Agreeableness	M	242	1.09 (1.09)	1.00 (1.39)	–.07	–1.39	241	.167
	F	371	1.34 (1.22)	1.05 (1.49)	–.21	–4.51	370	< .001 ◆◆◆
Neuroticism	M	244	–.81 (1.17)	–.73 (1.48)	.06	1.21	243	.227
	F	372	–1.30 (1.22)	–1.01 (1.51)	.21	4.54	371	< .001 ◆◆◆
Genuine, trustworthy	M	244	1.38 (1.21)	1.29 (1.58)	–.06	–1.23	243	.220
	F	370	1.49 (1.25)	1.15 (1.78)	–.22	–4.21	369	< .001 ◆◆◆

◆ $p < .05$ ◆◆ $p < .01$ ◆◆◆ $p < .001$

Paired t-tests; significant differences ($p < .05$) in gray.

Table B5. Correlations of Ps' judgments of date with relationship duration in weeks, up to 10 (contemporaneous respondents)

	PRE-DATE JUDGMENTS							
	MALE PARTICIPANTS				FEMALE PARTICIPANTS			
	r	***t***	***df***	***p***	***r***	***t***	***df***	***p***
Overall attraction	.11	0.79	53	.434	.18	1.67	80	.098
How much in common	.00	–0.04	54	.965	.03	0.28	81	.784
How close to ideal	.19	1.39	53	.171	.09	0.75	77	.455
How well gotten to know	.09	0.69	54	.493	.14	1.29	83	.202
Appeal of date's appearance	.07	0.54	53	.592	.04	0.33	75	.743
Appeal of date's personality	.21	1.56	52	.124	.15	1.31	75	.193
Date's personality's corr. with ideal	.24	1.62	43	.113	.13	1.03	62	.309
Date's openness	.13	0.91	51	.367	.18	1.59	74	.116
Date's conscientiousness	.24	1.73	51	.089	.01	0.08	73	.933
Date's extraversion	.05	0.36	50	.720	.12	1.09	78	.279
Date's agreeableness	.04	0.30	51	.766	.21	1.89	77	.063
Date's neuroticism	–.10	–0.72	52	.475	–.04	-0.36	77	.722
Date's genuine/trustworthiness	.43	3.40	52	.001 ◆◆	.17	1.48	77	.143

	POST-DATE JUDGMENTS							
	MALE PARTICIPANTS				FEMALE PARTICIPANTS			
	r	***t***	***df***	***p***	***r***	***t***	***df***	***p***
Overall attraction	.29	2.22	55	.031 ◆	.44	4.44	83	< .001 ◆◆◆
How much in common	.32	2.46	53	.017 ◆	.35	3.39	84	.001 ◆◆
How close to ideal	.30	2.26	52	.028 ◆	.44	4.39	81	< .001 ◆◆◆
How well gotten to know	.30	2.32	55	.024 ◆	.37	3.63	83	< .001 ◆◆◆
Appeal of date's appearance	.16	1.22	55	.227	.25	2.39	84	.019 ◆
Appeal of date's personality	.31	2.43	55	.018 ◆	.31	2.95	80	.004 ◆◆
Date's personality's corr. with ideal	.21	1.46	46	.151	.32	2.72	65	.008 ◆◆
Date's openness	.31	2.31	50	.025 ◆	.35	3.28	76	.002 ◆
Date's conscientiousness	.02	0.15	50	.881	.31	2.85	77	.006 ◆◆
Date's extraversion	.16	1.17	51	.249	.04	0.39	81	.701
Date's agreeableness	.21	1.59	53	.119	.38	3.69	80	< .001 ◆◆◆
Date's neuroticism	–.19	–1.37	51	.176	–.27	–2.43	77	.018 ◆
Date's genuine/trustworthiness	.11	0.79	53	.431	.28	2.55	79	.013 ◆

◆ $p < .05$ ◆◆ $p < .01$ ◆◆◆ $p < .001$

T-tests; significant differences ($p < .05$) in gray.

Table B6. Correlations of Ps' judgments of date with number of times seen after first meeting (retrospective respondents)

	PRE-DATE JUDGMENTS							
	MALE PARTICIPANTS				FEMALE PARTICIPANTS			
	r	*t*	*df*	*p*	*r*	*t*	*df*	*p*
Overall attraction	.16	2.65	258	.009 ◆◆	.13	2.62	395	.009 ◆◆
How much in common	.11	1.86	257	.065	.09	1.83	395	.068
How close to ideal	.15	2.36	255	.019 ◆	.10	1.98	395	.049 ◆
How well gotten to know	.18	2.98	258	.003 ◆◆	.10	2.08	394	.038 ◆
Appeal of date's appearance	.08	1.34	251	.182	.06	1.16	383	.248
Appeal of date's personality	.11	1.81	248	.072	.18	3.58	395	< .001 ◆◆◆
Date's personality's corr. with ideal	–.02	–0.35	224	.730	.06	1.16	329	.246
Date's openness	.20	3.15	248	.002 ◆◆	.04	0.70	379	.486
Date's conscientiousness	.05	0.76	249	.445	.11	2.15	379	.033 ◆
Date's extraversion	.09	1.48	250	.140	.01	0.22	385	.828
Date's agreeableness	.02	0.32	249	.749	.09	1.70	380	.091
Date's neuroticism	–.03	–0.43	249	.665	–.03	–0.52	378	.606
Date's genuine/trustworthiness	.04	0.60	248	.550	.13	2.60	381	.010 ◆

	POST-DATE JUDGMENTS							
	MALE PARTICIPANTS				FEMALE PARTICIPANTS			
	r	*t*	*df*	*p*	*r*	*t*	*df*	*p*
Overall attraction	.41	7.19	254	< .001 ◆◆◆	.46	10.42	394	< .001 ◆◆◆
How much in common	.46	8.30	254	< .001 ◆◆◆	.44	9.58	393	< .001 ◆◆◆
How close to ideal	.48	8.55	248	< .001 ◆◆◆	.48	10.99	394	< .001 ◆◆◆
How well gotten to know	.65	13.77	254	< .001 ◆◆◆	.57	13.78	390	< .001 ◆◆◆
Appeal of date's appearance	.22	3.68	256	< .001 ◆◆◆	.30	6.19	392	< .001 ◆◆◆
Appeal of date's personality	.35	5.92	255	< .001 ◆◆◆	.42	9.14	392	< .001 ◆◆◆
Date's personality's corr. with ideal	.16	2.45	224	.015 ◆	.23	4.22	332	< .001 ◆◆◆
Date's openness	.33	5.44	244	< .001 ◆◆◆	.20	4.06	378	< .001 ◆◆◆
Date's conscientiousness	.12	1.96	244	.051	.23	4.58	378	< .001 ◆◆◆
Date's extraversion	.16	2.51	244	.013 ◆	.10	2.05	378	.041 ◆
Date's agreeableness	.17	2.64	244	.009 ◆◆	.21	4.20	377	< .001 ◆◆◆
Date's neuroticism	–.01	–0.21	246	.835	–.12	–2.39	379	.017 ◆
Date's genuine/trustworthiness	.27	4.44	245	< .001 ◆◆◆	.23	4.65	375	< .001 ◆◆◆

◆ $p < .05$ ◆◆ $p < .01$ ◆◆◆ $p < .001$

T-tests; significant differences ($p < .05$) in gray.

Table B7. Correlations of Ps' own personality traits with relationship duration

	CONTEMPORANEOUS RESPONDENTS							
	MALE PARTICIPANTS				FEMALE PARTICIPANTS			
	r	***t***	***df***	***p***	***r***	***t***	***df***	***p***
P's openness	.07	0.53	54	.597	–.09	–0.81	84	.423
P's conscientiousness	–.06	–0.43	54	.669	–.06	–0.59	84	.559
P's extraversion	.01	0.11	54	.914	–.08	–0.71	83	.481
P's agreeableness	.15	1.10	55	.276	–.03	–0.31	83	.757
P's neuroticism	–.08	–0.58	54	.561	–.01	–0.07	83	.947
P's genuine/trustworthiness	.22	1.68	54	.098	–.04	–0.32	84	.748

	RETROSPECTIVE RESPONDENTS							
	MALE PARTICIPANTS				FEMALE PARTICIPANTS			
	r	***t***	***df***	***p***	***r***	***t***	***df***	***p***
P's openness	–.01	–0.19	252	.846	–.01	–0.11	394	.914
P's conscientiousness	.02	0.24	254	.810	.01	0.22	396	.827
P's extraversion	–.05	–0.87	254	.386	–.03	–0.67	393	.501
P's agreeableness	–.05	–0.86	257	.390	.07	1.33	396	.184
P's neuroticism	.06	0.93	256	.353	.01	0.26	392	.791
P's genuine/trustworthiness	.01	0.13	256	.893	.04	0.73	397	.465

◆ $p < .05$ ◆◆ $p < .01$ ◆◆◆ $p < .001$

T-tests; significant differences ($p < .05$) in gray.

Table B8. Correlations of contemporaneous respondents' own personality traits with relationship satisfaction and intimacy scores 2 weeks after first meeting

	RELATIONSHIP SATISFACTION				INTIMACY			
	r	***t***	***df***	***p***	***r***	***t***	***df***	***p***
P's openness	–.07	–0.48	49	.634	.14	0.92	45	.364
P's conscientiousness	.27	1.96	47	.056	.16	1.06	44	.297
P's extraversion	.22	1.57	49	.123	.25	1.76	45	.085
P's agreeableness	–.18	–1.25	49	.218	.05	0.33	45	.741
P's neuroticism	.00	0.00	49	.999	.05	0.31	45	.756
P's genuine/trustworthiness	–.02	–0.13	49	.895	.00	0.03	45	.974

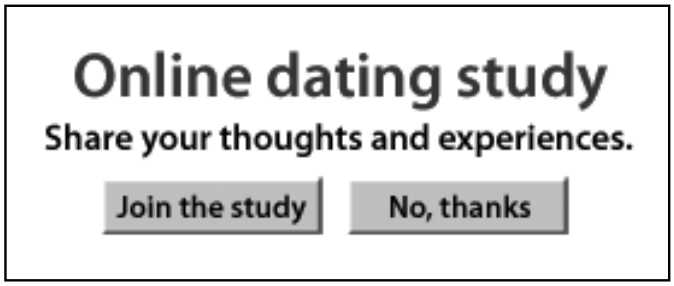
◆ $p < .05$ ◆◆ $p < .01$ ◆◆◆ $p < .001$

T-tests; significant differences ($p < .05$) in gray.

Appendix C: Figures

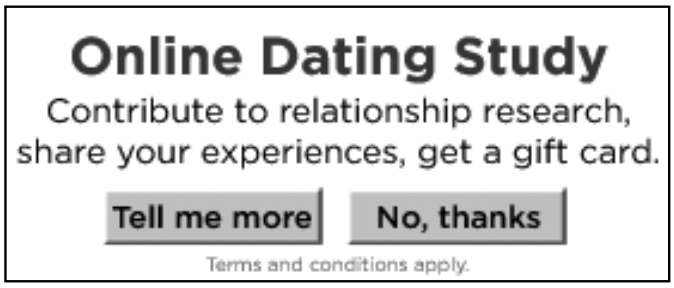
Figure C1. Recruitment advertisements

Phase 1

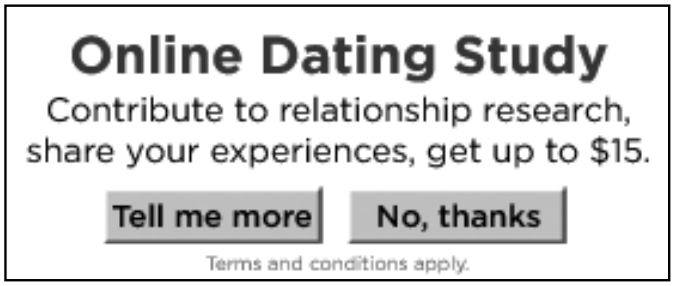


Phase 2: No money

Phase 2: Gift card



Phase 2: $15



Phase 2: $60

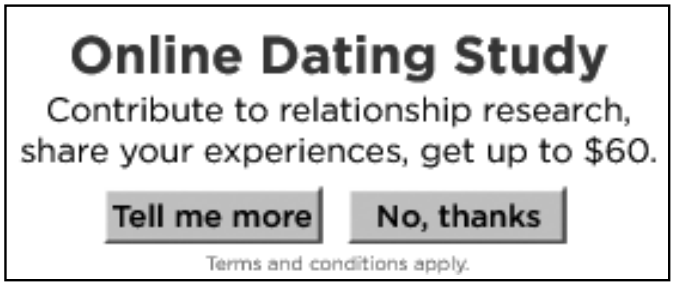


Figure C2. Graphical overview of sequence of questionnaires

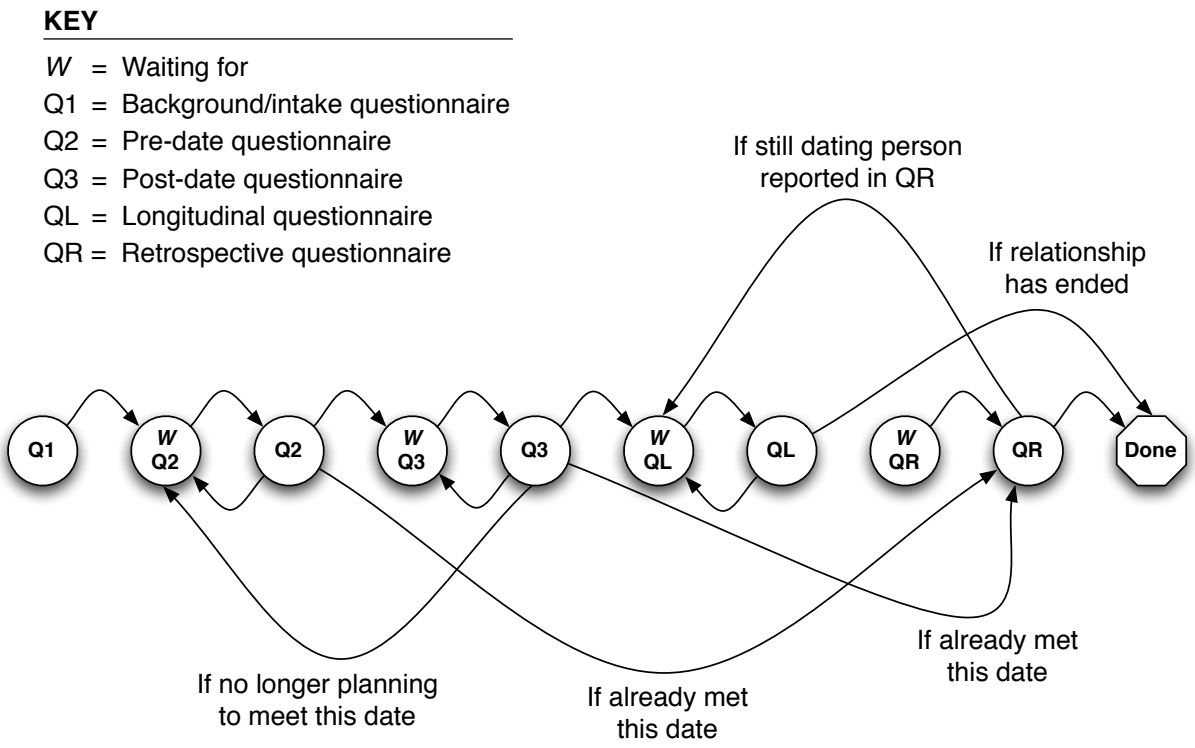


Figure C3. Interest in relationship types, pre-date vs. post-date (contemporaneous)

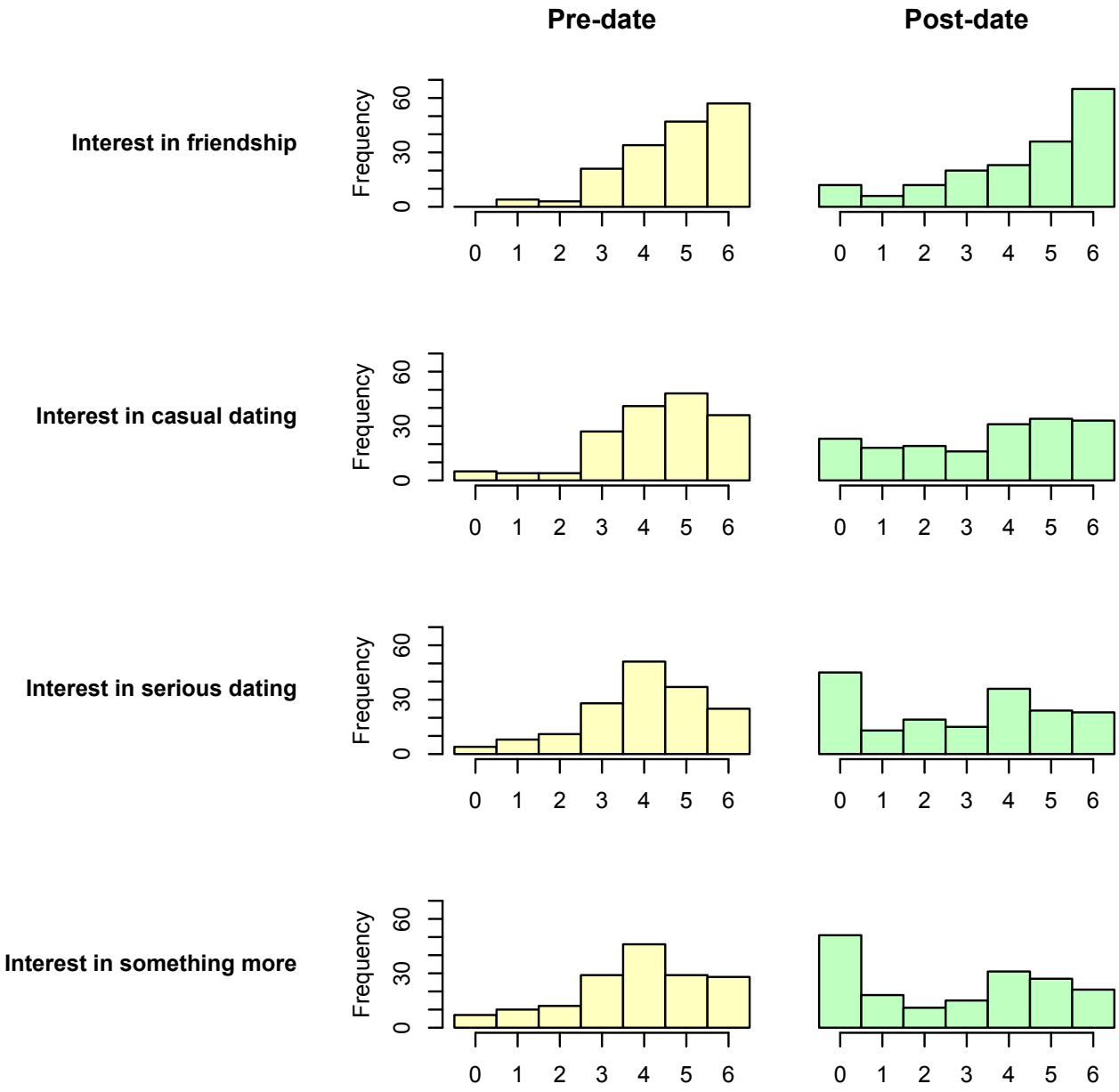
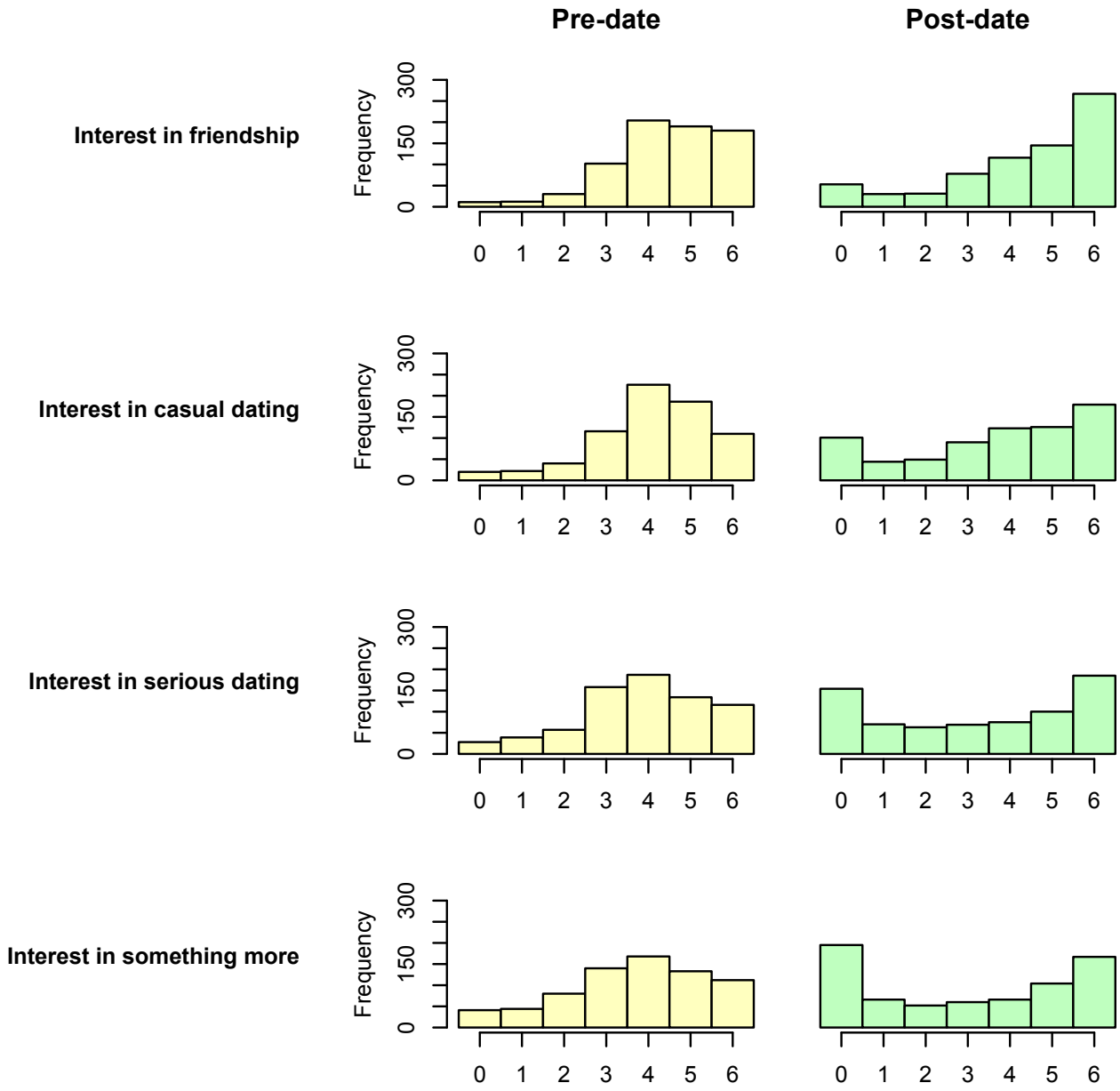


Figure C4. Interest in relationship types, pre-date vs. post-date (retrospective)



Appendix D: Advertisements and incentives

In the recruitment process for this survey, different combinations of advertisements and gift-card incentives yielded different participation rates. (As noted in Chapter 3, not all possible combinations were legitimate — i.e., it would have been illegitimate to advertise $60 but actually give no money.) This appendix presents an analysis of the participation rates in each ad-by-incentive condition.

The number of users shown each ad is presented in Table 4.1 in Chapter 4; it differed across the four ads. Tables D1 and D2 give the number of users who clicked on an advertisement in each of the ad-incentive conditions and the percentages of those clickers who took the first steps in participation. Note that "gift card amount" refers to the amount users were offered once they clicked the ad and were taken to the informed consent page, which was not always the same as the

Table D1. Number of people who clicked an ad by ad and incentive condition

		GIFT CARD AMOUNT			
		None	$15	$60	*Total*
AD SHOWN	No money	550	487	187	1,224
	Gift card	–	2,809	148	2,957
	$15	–	870	119	989
	$60	–	–	308	308
	Total	550	4,166	762	

Table D2. First-questionnaire completion rates among those who clicked an ad

		GIFT CARD AMOUNT			
		None	$15	$60	*Mean*
AD SHOWN	No money	39.5%	34.5%	46.0%	38.5%
	Gift card	–	35.7%	58.1%	36.8%
	$15	–	40.9%	56.3%	42.8%
	$60	–	–	46.4%	46.4%
	Mean	39.5%	36.6%	50.1%	

amount stated in the ad. In some conditions, the clickers represented in Table D1 were offered a monetary incentive that the ad did not mention (e.g., no-money ad with $60 incentive), or a higher or more specific incentive amount than the ad suggested (e.g., $15 ad with $60 incentive). The precise amount and terms of the incentives, if any, were presented to potential participants after they clicked the ad but before they made the decision represented in Table D2 to join the study and complete the first questionnaire.

The participation rates in Table D2 show the clear benefit of offering participants a $60 incentive. In particular, with the "gift card" ad, which did not specify the dollar value, the participation rate was more than 20 percentage points higher when the incentive was revealed to be worth $60 rather than $15, $\chi^2_1 = 29.5$, $p < .001$. Two more nuanced patterns of interest emerged as well. First, among those who were offered the $60 incentive, the participation rate was significantly higher for users who clicked the $15 or the "gift card" ad than it was for those who clicked the $60 ad or the ad that did not mention money, $\chi^2_1 = 8.0$, $p < .01$. The higher rate may be due to the "pleasant surprise" for participants of being offered $60 after clicking an ad that promised $15 or an unspecified amount. Those who clicked the $60 ad already expected $60.

The relatively low participation rate for those who clicked the ad that did not mention money but were then offered $60, which should also have been a pleasant surprise, points to the second pattern of interest. The ad that did not mention money invoked the potential participant's opportunity to contribute to relationship research and to share thoughts and experiences. Since it did not mention money, those who clicked it were more likely than those who clicked the other ads to have had some intrinsic motivation to participate in such research. Such intrinsic motivation can be "crowded out" — that is, displaced or dampened — by the offer of a monetary incentive (Pokorny 2008), and the completion rates in the top row of Table D2 above suggest that this may have happened in the present study to the people who clicked the no-money ad. Specifically, we see that the participation rate was lower when people who clicked this ad subsequently found out that they would receive $15 than when they were offered no money (34.5% vs. 39.5%) and only somewhat higher (46.0% vs. 39.5%) when they found that they would receive $60. If intrinsic motivation to participate was in fact "crowded out" by the $15 incentive, the much larger $60 incentive would appear to have overcome this effect somewhat. However, the participation rate in this case was still lower than in the other conditions with a $60 surprise, which may have drawn a greater proportion of extrinsically motivated people due to the ad's mention of money, as compared to the presumably intrinsically motivated people who clicked the no-money ad. The three-way test for a difference of proportions with the no-money ad across the three incentive conditions was significant, $\chi^2_2 = 7.9$, $p < .05$; however, the pairwise differences between the monetary incentive conditions and the no-

money condition were non-significant. Thus, although this pattern of participation rates suggests a crowding-out effect, more data would be needed to reach a firm conclusion about its presence.

Next, the combination of advertisement click rate with first-questionnaire completion rate is used to calculate the expected percentage of people shown an ad who go on to consent to participate and complete the first questionnaire. (These are expected percentages, not actual percentages, because my system did not track which potential participants *saw* an ad — unique identification was possible only once they clicked the ad.) The following table gives the expected percentages:

Table D3. Expected percentage of ad impressions that result in first-questionnaire completion

		GIFT CARD AMOUNT		
		None	$15	$60
AD SHOWN	No money	0.71%	0.62%	0.83%
	Gift card	–	0.83%	1.36%
	$15	–	0.90%	1.24%
	$60	–	–	1.25%

The $60 incentive clearly promotes participation as compared to other incentive levels following a click of the same ad. Moreover, the highest overall participation rates of 1.24% to 1.36% come when $60 is offered following an ad that mentions a monetary incentive (i.e., the gift card, $15, and $60 ads). Although these rates are almost twice as high as those for participants who were offered no money (0.71%), they are still low in absolute terms.

Finally, the average number of questionnaires completed by participants in each recruitment condition allows us to assess how much people in each group continued to take part in the study after the initial questionnaire:

Table D4. Average number of questionnaires completed

		GIFT CARD AMOUNT			
		None	$15	$60	*Mean*
AD SHOWN	No money	3.52	3.92	4.67	3.86
	Gift card	–	4.21	4.54	4.23
	$15	–	3.99	5.83	4.26
	$60	–	–	4.65	4.65
	Mean	3.52	4.12	4.83	

This metric is crude, since different participants were eligible for different numbers of questionnaires depending on their previous responses. However, there is no reason to believe that the distribution of the number of questionnaires for which participants were eligible was related to the condition under which they were recruited, so I believe it is a reasonable measure of ongoing participation. Across the various ad conditions, continued participation was greater for those receiving $15 in gift cards, with a mean of 4.12 questionnaires, than for those receiving no monetary incentive, with a mean of 3.52 questionnaires, t (326.9) = 2.98, p < .01. It was greater still for those receiving $60, with a mean of 4.83 questionnaires, t (610.4) = 4.12, p < .001 compared to the $15 payment condition, and t (544.7) = 5.38, p < .001 compared to the no-payment condition. Across the various payment conditions, those who clicked the $60 ad completed no more questionnaires on average (4.65 questionnaires) than those who clicked the $15 ad (4.26) or the gift card ad (4.23). Nor did clickers of the $15 ad and the gift card ad differ from each other in terms of questionnaire completions. However, those who clicked any of the ads that mentioned money completed more questionnaires than those who clicked the no-money ad (mean 3.86 questionnaires), t (839.2) = 2.71, p < .01. Pairwise comparisons of each of the money ads with the no-money ad were also significant at p < .01.

Discussion

The large-scale online survey recruitment via web advertisements that we undertook for this study offers several lessons that may apply beyond the present work. First, the low click rate on all of the recruitment advertisements — from 1.78% for the ad that did not mention money to 2.56% for the ad that offered $60 in gift cards — proved to be a major barrier to obtaining a large, representative sample. The participation rate among those who clicked to learn more about the study was reasonably high, ranging from 35% to 56%, but given the low click rate, the overall participation rate among those who were shown an ad was about 1%. By comparison, Kaplowitz and colleagues (2004) found response rates of 20.7% for participants sent a questionnaire by email and 31.5% for those who received it via postal mail.

It is clear that the online-advertisement approach to recruitment is not nearly as effective as typical direct-contact methods. We considered recruiting participants by direct email, but the online dating site with which we conducted this research asked that we not contact its users by email unless they had already agreed to participate in the study, as some of them might consider such emails to be an annoyance.

Monetary incentives improved participation rates statistically significantly but not dramatically. The first-questionnaire participation rate for those who were promised and offered no gift cards was 0.71% of those who were shown an ad, versus as high as 1.36% for those who were offered $60 in gift cards. Although this difference was highly significant, it does not represent a substantial improvement in practical terms in that the coverage of the sampling frame is poor either way, and the cost is of course much higher ($60 as compared to $0). Moreover, there was little or no benefit from giving monetary incentives to participants who initially clicked the ad promising no money, whether because of the "crowding out" effect or simply because people who click such an ad are not motivated by money to participate in research. Perhaps the only compelling argument for paying participants based on the present survey is that those who received gift cards completed one to two more questionnaires on average — that is, they persisted longer in the study. In longitudinal research, this could be an important behavior to incentivize and may justify the increased cost.

Appendix E: Unsuccessful online daters

Not all online daters succeed in meeting others from the site face-to-face. Some are simply not interested in doing so, choosing instead to browse and correspond with people online, while others want to meet someone in person but find the pool of potential dates unappealing or get no response from those they wish to date. The retrospective questionnaire in this survey asked participants at the beginning whether they had ever met someone face-to-face through the dating site. If so, they answered questions about their most recent date, the results of which are presented in Chapter 4 and Appendix B. Those who had never met someone in person through the site, however, answered an alternative set of questions about their attitudes toward online dating and the reasons why they thought they had not met anyone face-to-face. In this appendix, I present a brief summary of these responses.

The three most prominent reasons participants indicated as to why they had not met anyone had to do with the availability and accessibility of suitable dates. Participants rated the salience of eight potential reasons (Table E1) on a Likert-type scale from 0 ("Not at all") to 6 ("Very much"). The reasons rated most salient were a lack of compatibility with others on the site, a lack of responses from people whom they contacted, and a lack of initial contacts from others who were appealing to them. Moreover, men more than women cited a lack of response from people they contacted as well as their own attractiveness as reasons why they had not met anyone through the site, whereas women more than men indicated that the people who contacted them were not appealing. Table E1 provides a detailed comparison. These gender differences echo the findings of Fiore and colleagues (2010), in which an analysis of messaging behavior on the dating site showed that men initiated contact more often but got replies less often than women.

Indeed, in the assessment of attitudes toward online dating (Table E2), female respondents indicated greater agreement on average than men with the statement, "I feel like I am in control of whether or not I meet someone," a difference which in a sense summarizes the different experiences of men and women who did not meet anyone through online dating. Furthermore, women as compared to men reported seeing fewer people on the site whom they were interested in dating and expressed less trust in the people with whom they interacted on the site.

On average, participants did not feel that others were presenting themselves accurately, with a mean rating of –.31 on a –3 to 3 scale from "Strongly disagree" to "Strongly agree", yet they were

confident that their potential dates would see that they were the same in person as online, with a mean rating of 2.16 on the same scale. This discrepancy, which has been found in previous work as well (Gibbs et al. 2006), may be due to effects of the communication medium or discrepancies in how veracity is defined and evaluated for the self as compared to others.

Table E1. Reasons why participants had not met anyone through the online dating site

	Relevance of reason									
	Male			Female						
Reason	*M*	*SD*	*n*	*M*	*SD*	*n*	*d*	*t*	*d.f.*	*p*
My compatibility with the people I have seen online	3.34	1.75	355	3.50	1.83	225	–0.09	–1.07	461	.284
Characteristics of my own profile (e.g., things that others might find unattractive)	2.71	1.67	346	2.49	1.79	222	0.13	1.47	447	.142
My own effort — how much I am actively trying to meet someone	3.14	1.80	351	3.11	1.78	225	0.02	0.19	481	.852
How busy I am in my life (e.g., with work, friends, etc.)	3.10	1.85	356	2.91	1.84	228	0.11	1.24	486	.216
My own self-confidence	2.63	2.06	355	2.30	2.05	225	0.16	1.91	480	.057
My own level of attractiveness	**2.71**	1.93	353	**2.26**	1.99	223	0.23	2.66	461	.008
The people I contact do not respond to me	**3.84**	1.92	353	**3.44**	2.01	226	0.21	2.39	463	.017
The people who contact me are not the kind of people I am interested in meeting	**3.81**	1.89	351	**4.45**	1.71	223	–0.35	–4.15	507	<.001

Reasons were rated on a 0 (Not at all) to 6 (Very much) Likert-type scale.

Significant differences between men and women indicated in gray.

Table E2. Attitudes toward online dating among participants who had not met anyone

	Amount of agreement with statement									
	Male			Female						
Statement	*M*	*SD*	*n*	*M*	*SD*	*n*	*d*	*t*	*d.f.*	*p*
I am afraid to ask someone out.	–1.05	1.96	358	–0.82	1.96	225	–0.12	–1.37	477	.172
I trust the people with whom I interact on [the dating site].	**–0.19**	1.45	354	**–0.50**	1.33	227	0.22	2.61	511	.009
I am confident that when people meet me in person, they will see that I am the same as in my profile.	2.10	1.26	355	2.25	1.14	228	–0.12	–1.50	518	.134
I see people on [the dating site] whom I might be interested in dating.	**1.59**	1.47	356	**1.30**	1.45	225	0.20	2.30	481	.022
I think that people will like me when they meet me in person.	2.09	1.05	357	2.18	0.98	225	–0.09	–1.08	500	.281
I believe that people present themselves fairly accurately in their [dating site] profiles.	–0.31	1.55	354	–0.31	1.47	225	0.00	0.03	495	.980
I am worried that when people meet me in person, they won't find me physically attractive.	–0.64	1.89	351	–0.77	2.02	223	0.07	0.81	451	.421
I feel like I am in control of whether or not I meet someone.	**0.65**	1.74	356	**1.16**	1.81	223	–0.29	–3.35	456	<.001

Statements were rated on a –3 (Strongly disagree) to 3 (Strongly agree) Likert-type scale.

Significant differences between men and women indicated in gray.

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