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ABSTRACT

SUPPORTING USER EVALUATION OF MESSAGING INTERACTIONS WITH POTENTIAL ROMANTIC PARTNERS DISCOVERED ONLINE

by
Douglas Zytke

Online dating systems have transformed the way people pursue romance. To arrive at a decision to meet for a face-to-face date, users gather information about each other online pertinent to romantic attraction. Yet sometimes they discover on the date that they made the wrong choice. One aspect of online dating system-use that may be a contributing factor, but is largely overlooked in the literature, is interaction through text-based messaging interfaces. This dissertation explores how messaging interactions inform face-to-face meeting decisions through two qualitative studies, and explores through a mixed methods field study how innovative messaging interfaces that embody theory from marriage literature can help users predict enjoyment of face-to-face interactions.

Two qualitative studies of users of the online dating system *OkCupid* (n=41) and professional online dating coaches (n=35) indicate that users may have difficulty foreseeing unenjoyable face-to-face interactions because some users behave in ways during messaging interactions that differ from subsequent face-to-face interactions. Typical approaches to messaging resembled “auditions” in which female users hastily reject men whose messages are not immediately appealing, and male users compete for female attention with prewritten or carefully crafted message content.

Theories of relationship satisfaction are used to propose new ways that messaging interfaces could support online daters. Models of marital satisfaction posit that problem-

solving discussions (i.e., interactions in which partners are prompted to discuss a disagreement of opinion) are conducive to expression of attraction-relevant traits (e.g., personality). If this theory extends to potential romantic partners, messaging interfaces that prompt online daters with problem-solving discussion topics may yield interactions online that are similarly enjoyable to future, in-person interactions in which the richer, face-to-face context inherently supports signaling of attraction-relevant traits.

A messaging interface prototype is designed based on the concept of problem-solving discussions and assessed alongside a standard, open messaging interface through a mixed methods field study (n=85). Results indicate that prompting users to discuss topics that they disagreed on does not help them make better face-to-face meeting decisions. Female daters are uncomfortable with an emphasis on disagreements because of anticipated arguments and men are indifferent to the interface because they seek signals of attraction more so than compatibility. However, female users' decisions to meet face-to-face do benefit from a messaging interface that prompts users to discuss topics that they agreed on. In contrast, men's decisions to meet face-to-face are worsened by the same prompted-agreement interface due to misinterpreting an emphasized agreement as a signal of attraction from women. Together, results suggest that a redesigned topic-prompted messaging interface should clarify to users that an emphasized (dis)agreement of opinion is not intended to incite an argument or insinuate attraction. A broader design implication includes acknowledging that users prioritize signals of compatibility and attraction differently and customizing messaging interface components to highlight information pertinent to users' varying needs.

**SUPPORTING USER EVALUATION OF MESSAGING INTERACTIONS WITH
POTENTIAL ROMANTIC PARTNERS DISCOVERED ONLINE**

**by
Douglas Zytke**

**A Dissertation
Submitted to the Faculty of
New Jersey Institute of Technology
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APPROVAL PAGE

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POTENTIAL ROMANTIC PARTNERS DISCOVERED ONLINE**

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Donghee Yvette Wohn, Wei Peng, and **Doug Zytko**. 2017. Face to face matters: Communication modality, perceived social support, and psychological wellbeing. In *Proceedings of the 2017 CHI Conference Extended Abstracts on Human Factors in Computing Systems*, 3019–3026.

Douglas Zytko, Sukeshini A Grandhi, and Quentin Jones. 2016. The coaches said...what?: Analysis of online dating strategies recommended by dating coaches. In *Proceedings of the 19th International Conference on Supporting Group Work*, 385-397.

- Douglas Zytko.** 2016. Enhancing evaluation of potential romantic partners online. In *Proceedings of the 19th International Conference on Supporting Group Work*, 517–520.
- Douglas Zytko, Sukeshini A Grandhi, and Quentin Jones.** 2016. Online dating coaches' user evaluation strategies. In *Proceedings of the 2016 CHI Conference Extended Abstracts on Human Factors in Computing Systems*, 1337–1343.
- Douglas Zytko, Sukeshini A Grandhi, and Quentin Jones.** 2015. Frustrations with pursuing casual encounters through online dating. In *Proceedings of the 33rd Annual ACM Conference Extended Abstracts on Human Factors in Computing Systems*, 1935–1940.
- Doug Zytko, Guo Freeman, Sukeshini A Grandhi, Susan C Herring, and Quentin Gad Jones.** 2015. Enhancing evaluation of potential dates online through paired collaborative activities. In *Proceedings of the 18th ACM Conference on Computer Supported Cooperative Work & Social Computing*, 1849–1859.
- Doug Zytko, Jessa Lingel, Jeremy Birnholtz, Nicole B Ellison, and Jeff Hancock.** 2015. Online dating as pandora's box: Methodological issues for the CSCW community. In *Proceedings of the 18th ACM Conference Companion on Computer Supported Cooperative Work & Social Computing*, 131–134.
- Douglas Zytko, Sukeshini A Grandhi, and Quentin Jones.** 2014. Impression management struggles in online dating. In *Proceedings of the 18th International Conference on Supporting Group Work*, 53–62.
- Stephen Ricken, Sukeshini Grandhi, **Doug Zytko**, Starr Roxanne Hiltz, and Quentin Jones. 2014. Anyone for bowling?: Coalescing for shared activities. In *Proceedings of the 18th International Conference on Supporting Group Work*, 122–130.
- Douglas Zytko, Sukeshini A. Grandhi, and Quentin Jones.** 2014. Impression management and formation in online dating systems. In *European Conference on Information Systems (ECIS) 2014*, 1–10.
- Douglas Zytko, Sukeshini A Grandhi, and Quentin Gad Jones.** 2014. Impression management through communication in online dating. In *Proceedings of the companion publication of the 17th ACM Conference on Computer Supported Cooperative Work & Social Computing*, 277–280.

For Mom and Dad, who had no need for TV shows these past seven years after all the drama I provided them. I love you – and now those words are in writing forever.

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CHAPTER 1

INTRODUCTION

This chapter briefly examines how the pursuit of romance has drastically changed in the past century with a focus on how online dating systems have most recently impacted this change.

1.1 Finding Romance in the 21st Century

Humans are naturally social creatures. We seek partners for a variety of interpersonal relationships, one of the most fundamental being romantic relationships. For centuries, in many societies the process of finding a romantic partner was commonly engineered by human matchmakers who arranged men and women in their communities as partners for marriage, often without the consent of the respective partners. These matchmakers, who were usually religious officials or elders in the community, matched potential marriage partners based on family lineage and earning potential [5,47]. These marriages were largely a way for families to maintain and grow their resources rather than a culmination or expression of love [4].

While still prevalent in eastern cultures, arranged marriages are rare in modern western societies where, instead, people have the freedom to choose their own romantic partners. The state of romance—how people choose romantic partners and what types of romantic relationships they pursue—in western cultures like the United States has undergone drastic transformations in the last century due to technology. Mass production of the automobile in the 1920s gave people the opportunity to go on more dates when

they wanted [8], and the advent of contraception in the 1960s enabled people to engage in sexual activities outside of long-term romantic relationships without fear of pregnancy [78,138]. Beginning in the early 1900s, newspaper personal ads were used to advertise the desire to find a romantic partner [175]. These ads maintained some level of popularity into the 1990s [138,196], at which point the invention of videocassette recorders led to the emergence of video dating services [1,232]. Despite these technological advancements in communication media, the most common ways that people actually discovered their long-term romantic partners in America throughout the 20th century were not credited to technology, but rather social connections—e.g., being introduced through friends and family—or situational factors such as meeting at a bar, work, or college [187].

In the new millennium however, technology has had a profound and direct effect on the discovery of romantic partners through online dating systems, which are websites and apps “designed to facilitate interactions between potential romantic partners” (p. 428) [107]. *Match.com* was the first online dating system to emerge on the market in 1995, followed by *eHarmony* in 2000 and quickly thereafter by virtually hundreds of different online dating systems catering to a variety of relationship goals and user demographics.

As of 2015, 15% of U.S. adults have used an online dating system [199]. Unlike newspaper personal ads and video dating services, online dating systems have had a well-documented impact on marriages. From 2005 to 2012, online dating systems were the single most common way people discovered their marriage partners [34]. This surpassed the combined percentage of meeting through friends, meeting at work, and meeting at school. Research has also indicated that online dating systems are commonly used by

adults pursuing casual sex [15], as well as adults interested in both long-term relationships and casual sex experiences [37].

While online dating systems may be popular, they are not optimally designed to help users predict romantic attraction to potential partners in-person. Prior work tells us that the designs of online dating systems encourage users to approach online dating like a shopping experience—searching for potential partners based on lists of desired qualities reminiscent of shopping lists [107] and reading users’ profile pages as if they were product descriptions. This design approach is ultimately detrimental to potential romantic partner evaluation for two reasons.

One, people have poor introspective awareness of which individual traits will trigger their attraction in-person [50], so system designs that facilitate the discovery and evaluation of potential partners online predominantly based on consciously preferred traits may ultimately spur poor predictions of in-person attraction. For example, women generally prefer high income in men, yet research has shown that this conscious preference poorly predicts attraction to potential partners in-person [50]. Research posits that this is because ideal trait preferences are thought of in an abstract fashion that fails to take a person’s other unique qualities into account holistically.

And two, potential romantic partner evaluation is not an instantaneous process that is informed solely by singular, isolated pieces of information that are deliberately provided in profile pages (e.g., pictures, multiple-choice questions). For example, dyadic interaction has historically been integral to the evaluation of potential romantic partners, as the gradual process of interaction serves as a conduit of expression for a variety of attraction-relevant characteristics that are not suited to deliberate, immediate expression

(e.g., personality, attachment style) [123]. While today's online dating systems do facilitate interaction through text-based messaging interfaces, such messaging interfaces stand to poorly inform face-to-face date decisions if users apply the same instantaneous, shopping-esque approach to messaging interactions as they do with profile pages.

Currently, we have limited insight into the severity of these potential romantic partner evaluation struggles in online dating systems. There is little empirical knowledge concerning how online dating system users leverage both profile pages and messaging interfaces available to them in these systems to make decisions over which potential partners to meet in-person, and there is little empirical knowledge about the outcomes of these decisions. Without this knowledge, there would be no baseline to compare alternative design concepts that can improve the status quo.

1.2 Dissertation Objective

The objective of this dissertation is two-fold. One is to understand how online dating system users leverage both profile pages and messaging interfaces to evaluate potential romantic partners online, how these evaluations factor into their in-person meeting decisions, and how accurate they deem their online evaluations once validated in-person. The other is to leverage the knowledge gained from pursuing the first objective to find ways to improve evaluation capabilities in online dating systems so users can make better-informed in-person meeting decisions. Results of this research will enhance our understanding of how user evaluation can be better supported in computer-mediated environments such as online dating systems. Contributions of this dissertation include a theoretical model of the process of evaluating potential romantic partners discovered in

online dating systems, an understanding of online dating system users' evaluation strategies and the outcomes of their evaluation decisions, and innovative software prototypes for better facilitating evaluation of potential relationship partners in computer-mediated environments.

1.3 Dissertation Organization

This dissertation is organized as follows. It begins by defining romantic attraction and reviewing prior work about the various characteristics that influence romantic attraction (Chapter 2). This is followed by a review of work concerning how people evaluate potential romantic partners, with a particular focus on interaction (Chapter 3). Chapter 4 then introduces online dating systems as a modern avenue for discovering and evaluating potential romantic partners and discusses the designs of these systems in detail. Chapter 5 presents and discusses a model of the online dater evaluation process, which depicts how users engage in evaluating potential partners discovered in these systems for the purpose of in-person meetings. Chapter 6 follows by identifying gaps in knowledge and posing theorized user struggles regarding the online dater evaluation process, with a focus on messaging interfaces for interaction. Chapter 7 then proposes a research plan for understanding how online dating system users evaluate potential romantic partners to make in-person meeting decisions, along with the outcomes of those decisions, as well as understanding how online dating system designs can better support evaluation of potential romantic partners. Chapters 8-11 expand upon each step of the research plan, and chapter 12 summarizes the dissertation, discusses limitations of the research presented, and poses avenues for future work.

CHAPTER 2

ROMANTIC ATTRACTION

2.1 Introduction

This dissertation focuses on how people evaluate potential partners for romantic relationships. A necessary precursor to romantic relationship initiation, which also differentiates romantic relationships from other types of interpersonal relationships, is romantic attraction. This chapter discusses romantic attraction as an integral element dictating the evaluation of potential romantic partners and various traits or characteristics that play a role in fostering this attraction. The chapter begins by defining romantic attraction and romantic relationships. This is followed by a review of prior work about romantic attraction influences. While this review of prior work regarding romantic attraction influences is by no means exhaustive, it aims to provide enough depth to form a basis for the research presented in this dissertation.

2.2 Defining Romantic Attraction

A definition of interpersonal attraction adopted in previous research is “an individual’s tendency or predisposition to evaluate another person...in a positive (or negative) way” [13] (p. 20), also see [60]. People become attracted to others for a variety of interpersonal relationships, such as friendship and romance. This dissertation focuses on attraction to people for romantic relationships.

2.2.1 Romantic Relationships

Romantic relationships can be divided into two categories: long-term and short-term relationships. This follows from two basic mating strategies outlined in evolutionary psychology [30]. Long-term romantic relationships are typically characterized by monogamy [152], in which a person has only one romantic relationship partner at a time and does not engage in sex with people outside of the relationship [180]. Another key element of long-term romantic relationships is a sharing of resources such as food, water, and shelter, and a joint commitment to childcare [215]. Marriage is an example, but not a requirement, of a long-term romantic relationship [123].

Short-term romantic relationships are characterized primarily as “brief, uncommitted sexual encounters” [78] (page 2). Research into short-term mating often refers to such relationships as “hookups” [78] and “casual sex” [104]. Short-term romantic relationships usually do not feature sexual exclusivity between partners, nor do they typically feature a sharing of resources. These relationships may end after one sexual encounter [176], or persist over multiple sexual encounters. The terms “friends with benefits” (FWBs), “booty calls,” or “fuck-buddies” [121] are sometimes used to define short-term romantic relationships that entail multiple sexual encounters with the same uncommitted partner. In this regard, “long-term” and “short-term” as referred to in this dissertation do not necessarily refer to the length of time two people engage in a romantic relationship, but rather the extent of exclusivity and sharing of resources between them.

Long-term and short-term romantic relationships are not necessarily mutually exclusive goals. A person may engage in a short-term sexual encounter while searching for a long-term relationship, sometimes with a partner that eventually becomes a long-

term relationship partner. This dissertation encapsulates attraction between people for long-term and short-term romantic relationships.

2.2.1.1 Romantic Attraction. Finkel and colleagues breakdown romantic attraction into two stages or contexts: attraction contexts (“in which individuals are evaluating potential romantic partners with whom they do not yet have a romantic relationship”) and relationship contexts (“in which individuals are evaluating someone with whom they already share a romantic relationship”) [58]. This dissertation focuses only on attraction contexts, or evaluations of potential romantic partners with whom one is not yet in a romantic relationship with.

Romantic attraction is defined in this dissertation as the extent to which someone positively evaluates a person as an appropriate partner for a long-term and/or short-term romantic relationship. The subject of this evaluation is called a *potential romantic partner*, which Finkel and colleagues define as “any member of one’s preferred sex whom one believes is available and interested in finding a romantic partner” [58].

2.2.1.2 Romantic Compatibility. While the focus of this dissertation is romantic attraction, some background literature regarding romantic compatibility will be referenced throughout the document to theorize phenomena that may apply to—but has not been directly studied in terms of—romantic attraction. *Romantic compatibility* refers to evaluations of satisfaction in an ongoing romantic relationship [123]. Much work regarding romantic compatibility discusses it in the context of long-term romantic relationships [51,115,146], with Houts and colleagues describing romantic compatibility as “a mellifluous and mutually satisfying partnership” [113]. Romantic compatibility in

marriages has been described with a variety of terms—“marital quality, marital satisfaction, marital adjustment, and marital distress are used interchangeably to refer to a spouse’s evaluation of their marriage” [123] (p. 1).

2.3 Influences on Romantic Attraction

“Despite the recent renaissance of attraction scholarship, the field remains a theoretical morass. Dozens of theories have guided research, and scholars have devoted little effort toward linking these far-flung theories into an integrated framework” [60] (p. 5). While prior studies of romantic attraction seldom explicitly subscribe to an integrated framework or model of romantic attraction influences, there does exist a model of influences on romantic compatibility (satisfaction in ongoing romantic relationships). The Vulnerability-Stress-Adaption (VSA) model of relationship development [123] poses three interconnected factors that affect romantic compatibility: enduring vulnerabilities (stable characteristics of the partner such as personality and past experiences in life, etc.), adaptive processes (emotions and behavior experienced during interactions with the partner), and stressful events (e.g., losing one’s job, having a baby). Much of the prior work involving influences on romantic attraction that precedes relationship initiation can be categorized into three similar factors: individual characteristics or traits of a potential romantic partner, social interaction with a potential romantic partner, and external circumstances.

2.3.1 The Influence of a Potential Partner’s Traits on Romantic Attraction

The traits that we possess as individuals—such as our personality, our height, and our interests—influence our attractiveness in the eyes of potential romantic partners. This

section will discuss the types of traits that influence romantic attraction. Given that no universally agreed upon list of such traits exists, the section concludes with a list of trait categories that may influence romantic attraction.

2.3.1.1 Ideal Partner Preferences. What traits do you prefer in an ideal romantic partner? A substantial amount of research into the traits that influence romantic attraction has investigated ideal partner preferences—the traits that people state they would prefer, or should theoretically prefer, in a potential romantic partner. Such traits include personality, physical appearance, earning potential, and so on. This line of research began in 1945 when Reuben Hill asked participants to rate the importance of a list of traits pertaining to a hypothetical potential romantic partner [108], and was expanded upon with theories rooted in evolutionary psychology through the second half of the 20th century [26,77,215].

2.3.1.1.1 Romantic Attraction as Evolved Trait Preference. “Evolutionary psychology is guided by the idea that people’s thoughts, feelings, and behaviors are influenced by evolved biological mechanisms” [61] (p. 6).

The application of evolutionary psychology to explain romantic attraction began in 1972 when Trivers proposed Parental Investment Theory, positing that the degree of investment devoted by each parent to raising children is a key influence on mate selection [215]. According to the theory, the sex of the parent that invests more in their offspring will be relatively choosier in mate selection, and the sex that invests less will be less choosy and will “compete more vigorously for access to...members of the opposite sex” [30] (p. 206). In humans, females typically have higher parental investment because their

number of offspring is constrained by the length of time of pregnancy, and because they typically raise their offspring for several years [30]. As such, women are usually choosier when it comes to mate selection, and men are less discriminating and more vigorous at pursuing mates [126].

In 1989, Buss extended Triver's theory by focusing on sex-differentiated mate preferences regarding two dimensions of traits—physical attractiveness and the ability to procure resources [26]. According to this evolutionary perspective, men value physical attractiveness (and related traits like younger age) more than women because it indicates fertility, while women value earning prospects (and related characteristics like social status) more than men because of financial assistance and resources needed for raising children [50].

Buss also emphasized an evolved preference for personality [27], although he did not clearly differentiate it as a different dimension of trait. Personality is defined in evolutionary psychology broadly as individual differences in human psychology that guide behavior [27,28]. According to Buss, personality plays an important role in mate selection for both sexes because some traits like intelligence, conscientiousness, sociability, and emotional stability are vital to survival, reproduction, and raising offspring [27].

In 1996, Gangestad and Simpson summarized three dimensions of traits that have evolved to influence romantic partner preferences: 1) the potential romantic partner's capacity for intimacy and commitment, 2) physical attractiveness and general health, and 3) social status and resources [69,77]. Through surveys, Fletcher and colleagues revealed 49 traits of an ideal romantic partner that represented the aforementioned three

dimensions. Factor loadings of the 49 traits are exhibited in Table 2.1. Fletcher and colleagues did not differentiate between trait preferences by sex, but explained that people may vary to the extent that they prefer each of these 49 traits based on lived experiences and outside material that can influence one's perception of ideals [69].

2.3.1.2 Similarity with Potential Romantic Partners' Traits. Aside from ideal partner preferences, another common line of research into the traits that influence romantic attraction seeks to explore patterns of traits that predispose people to being romantically attracted to each other. Perhaps the most commonly studied pattern is homophily, or the tendency for people to be attracted to others with traits similar to their own [32,162]. Research has explored homophily for a variety of trait categories regarding romantic attraction, but this research does not follow the same categories of traits outlined in mate preference research (i.e., commitment, physical attractiveness, and resources). While the homophily research does not provide its own trait categorization, most of this work studies traits that fall into one of four categories regarding romantic attraction: personality, physical appearance, demographic traits, and personality.

2.3.1.2.1 *Similar Personality.* "Personality" is a term notoriously hard to define. Sir Francis Galton, one of the first scientists to explore personality in 1884, referred to personality as a series of traits, or "the more conspicuous aspects as the character" [71]. From an evolutionary psychology perspective (as previously discussed), personality refers to individual differences in human psychology that dictate differences in how humans think and behave [27,29].

Table 2.1 Factor Loadings of Ideal Partner Preferences

<i>Factor Loadings of Factor Analyses on the Importance Ratings of Partner Ideals</i>					
Variable	Rate of mention (%; Study 1)	Importance rating (Study 2)	Factor 1 (Warmth– Trustworthiness)	Factor 2 (Vitality– Attractiveness)	Factor 3 (Status– Resources)
Understanding	42	5.99	.87	–.18	.04
Supportive	12	5.95	.85	–.15	.02
Considerate	52	5.93	.83	–.11	.03
Kind	14	5.87	.81	.00	.00
Good listener	08	5.74	.75	–.04	.11
Sensitive	28	5.75	.75	.01	.08
Trustworthy	34	6.45	.72	.01	–.06
Warm	14	5.66	.71	–.03	–.04
Affectionate	18	5.93	.69	–.02	.08
Reliable	16	5.81	.68	.03	.15
Friendly	18	5.87	.67	.10	–.05
Communicative	48	6.08	.62	.14	–.13
Honest	36	6.36	.58	.07	–.14
Mature	08	5.47	.53	.11	.02
Stable	18	5.47	.52	.10	.20
Romantic	18	5.26	.46	.08	.21
Broad-minded	20	5.77	.43	.33	–.31
Easygoing	26	5.57	.42	.27	–.11
Self-aware	10	5.43	.41	.20	–.18
Generous	12	5.04	.35	.20	.15
Deals well with criticism	48	5.29	.34	.33	–.11
Likes children	10	4.43	.32	–.13	.29
Adventurous	06	5.31	–.01	.75	–.18
Nice body	18	4.82	–.20	.68	.30
Outgoing	52	5.15	.09	.65	.03
Sexy	16	5.21	–.06	.65	.16
Attractive	92	5.20	–.13	.62	.26
Good lover	18	5.48	.02	.59	.13
Active lifestyle	06	5.25	.09	.58	.09
Sporty and athletic	36	4.34	–.22	.55	.29
Confident	16	5.39	.15	.52	–.03
Independent	34	5.50	.23	.48	–.22
Ambitious	36	4.83	.06	.47	.28
Interesting	06	6.11	.39	.46	–.11
Spontaneous	06	5.17	.16	.43	–.27
Good fun	16	6.00	.42	.43	–.08
Good sense of humor	68	5.94	.36	.42	–.11
Assertive	12	4.88	.26	.41	.08
Creative	08	4.65	.29	.35	–.04
Intelligent	84	5.54	.20	.34	–.13
Good job	06	3.85	.04	.21	.75
Financially secure	12	3.89	.10	.08	.73
Nice house or apartment	08	2.79	–.07	.16	.69
Appropriate ethnicity	06	2.56	–.10	.03	.61
Successful	08	4.31	.14	.32	.58
Dresses well	10	4.25	–.02	.30	.56
Appropriate age	06	3.83	–.05	.24	.42
Religious beliefs	06	2.44	.07	–.14	.30
Does not smoke	06	5.08	.08	–.04	.24

Note. N = 50 (Study 1); N = 320 (Study 2). Factor loadings of .40 and higher are in boldface type.

Source: [69]

Most conceptualizations of personality leveraged in science, like Galton's, stem from the lexical hypothesis, which states that the most important personality traits in humans will be referenced so much that they will eventually be encoded as single words in the many languages used by people [86]. Scientists have made many attempts to reduce these references—which can number in the thousands [76]—to more manageable models of personality. Perhaps the most common model of personality used in romantic attraction research (particularly personality similarity) is “the big 5” [81], which as its name implies, consists of five dimensions, and a number of personality traits are associated with each dimension. They are summarized as follows. The openness to experience dimension refers to intelligence [153], creativity, and the need for adventure. The conscientiousness dimension refers to spontaneity, carelessness, and stubbornness. The dimension of extraversion refers to talkativeness, assertiveness, sense of humor [93], and being outgoing. The agreeableness dimension refers to friendliness, competitiveness, and being cooperative. The neuroticism dimension refers to a tendency to experience unpleasant emotions like anger, anxiety, and nervousness.

While there is empirical evidence of personality traits influencing romantic attraction [49,99], research regarding the influence of similarity of personality on romantic attraction is inconsistent. In one study, Luo and Zhang [156] found no link between similar personalities (by comparing self-reported answers to big 5 personality surveys) and propensity to “like” potential romantic partners at a speed dating event. A majority of studies investigating personality similarity did so with established romantic couples. Some of this work carried the assumption that associations between personality similarity and relationship satisfaction meant that personality similarity also influenced

initial romantic attraction. For example, Botwin and colleagues considered established couples an appropriate sample to answer the research question, “do men and women actively desire those who are similar to themselves?” [17]. Botwin and colleagues studied college-aged couples that had been dating for at least 6 months, and those couples demonstrated similarity in terms of agreeableness, conscientiousness, extroversion, and openness to experience [17]. Other studies investigated married couples, but the association between personality similarity and relationship satisfaction in married couples is dubious. While similarity of individual personality traits poorly predicts relationship satisfaction, the association between relationship satisfaction and similarity across personality profiles (the overall pattern of one’s personality traits) has garnered some support [87,88]. However, other work shows a negligible effect of personality similarity on relationship satisfaction [83,147,154,186,193,224]. Ultimately, research about the association between patterns of personality similarity and relationship satisfaction is conflicting, and there is relatively little work to assert that similarity of personality influences romantic attraction between people not already in a relationship with each other.

2.3.1.2.2 *Similar Physical Attractiveness.* Research into similarity of physical attractiveness has explored romantic attraction between individuals of similar “levels” of physical attractiveness, and romantic attraction between individuals that look visually similar. Berscheid and colleagues demonstrated that individuals with similar levels of physical attractiveness, as determined by judges, expressed the most liking for each other [12]. In terms of similarity of physical appearance, studies have demonstrated that participants considered photographs of people of the opposite sex as more attractive

when, unbeknownst to them, their own faces were blended into the faces in the photographs [71].

2.3.1.2.3 *Similar Demographic Traits.* A demographic is a section of the population sharing common characteristics, and demographic traits are those that characterize such populations. Common examples include sex, age, and economic status. Regarding romantic attraction research, other demographic traits that have been studied are height, political orientation, and religion. Byrne and colleagues demonstrated in 1966 that individuals with similar economic status are more likely to be attracted to each other [33]. Buss and Barnes [31] also revealed preferences for potential romantic partners with similar demographic traits to one's own, including religion, political orientation, and economic status. There has been additional research studying the similarity of demographic traits among newlywed couples, including similarity regarding age, political orientation, and education [224], race or ethnicity [22], and religion [105](Heaton & Pratt, 1990). However, it is not known if these demographic trait similarities influenced initial romantic attraction between partners [58].

2.3.1.2.4 *Similar Attitudes and Values.* This category comprises behaviors or attitudes associated with demographic traits (e.g., "religiosity," which includes how often one goes to church or how often one prays), and also general attitudes about life (e.g., one's opinion on abortion) and the leisure activities one prefers to engage in.

Most of the research into similarity of attitudes and values has explored newlywed couples, rather than individuals and their attraction to potential romantic partners. This research shows that couples tend to share attitudes and values, particularly political views

(issues such as abortion and legalization of same-sex marriages), religiosity, and general life values (self-respect, love, wealth), e.g., [155,224]. However, the influence of similar attitudes and values on romantic attraction is dubious—some results were not replicated across studies, and marital satisfaction was sometimes not associated with both sexes [58] (p. 44).

2.3.1.3 Complementarity with Potential Romantic Partners' Traits. Researchers have investigated another pattern of traits that may influence romantic attraction: complimentary, which is also described as “opposites attract” [58] (p. 45). The idea of complementarity as a driver of romantic attraction was posed in 1958 by Robert Winch [230], and continues to be promoted by scientists such as Helen Fisher [66]. Despite its continued support, the pattern of complementarity has relatively little empirical evidence. In regards to big 5 personality traits, for example, studies have shown little evidence that people are romantically attracted to those with personality traits opposite to, or lacking, in themselves (Klohn & Mendelsohn, 1988; Till & Freedman, 1978; Hendrick & Brown, 1971).

2.3.1.4 Taxonomy of Traits that Influence Romantic Attraction. Romantic attraction research lacks a universal categorization of traits that influence romantic attraction. Partner preference research, rooted in evolutionary psychology, has produced a three-dimensional categorization of preferred traits, yet this categorization does not include any neutral or undesirable traits (i.e., traits that may influence romantic attraction in a negative direction). In other words, the evolutionary psychology categorization organizes only the positive or preferred states of traits that are desired in potential

romantic partners. Research into trait patterns of similarity and complementarity included trait categories of a more neutral fashion and included some traits that would largely be considered negative (e.g., the big 5 personality dimension of neuroticism). The four categories of traits investigated through this body of similarity and complementarity research—physical attractiveness, demographic traits, attitudes and values, and personality traits—actually overlap with the overtly positive evolutionary psychology categorizations in many ways. They both include physical attractiveness, for example, and many of the desired traits in evolutionary psychology’s commitment dimension are reminiscent of personality traits under the five factor model. If we consider Fletcher’s list of 49 traits to be an adequate summation of traits desired in a potential romantic partner under the evolutionary psychology perspective, then most of these traits are accounted for in the four trait categories applied in similarity and complementarity research. The one trait that is not accounted for is relationship goal or sociosexual orientation, as posed under Buss’s sexual strategies theory (i.e., the choice of long-term and short-term mating strategies) [30,197]. One can thus consolidate the trait categories that may influence romance attraction in a positive or negative direction as follows. It should be noted that these categories are not mutually exclusive, and may overlap.

1. **Physical attractiveness:** appearance of one’s face and body
2. **Personality:** individual psychological differences that influence behavior [27,29]
3. **Demographic traits,** e.g., age, height, economic status
4. **Attitudes and values:** behaviors or attitudes associated with demographic traits (e.g., “religiosity”), general attitudes or views on life (e.g., political opinions), and leisure activities
5. **Relationship goals:** one’s desire for a long-term relationship and/or short-term relationship

2.3.2 The Influence of Interaction on Romantic Attraction

There are factors other than a potential romantic partner's traits that can influence romantic attraction to them. In-person interaction has long been considered an integral influence on romantic compatibility, or satisfaction in ongoing romantic relationships. According to behavioral theories, the behaviors expressed by partners during interactions with each other—such as acting defensive, superior, or supportive—significantly affect each partner's satisfaction in the relationship [92,120,158,205,229]. Due to this body of research, the VSA model of relationship development places interaction (called adaptive process) at the heart of the model as the most immediate influence on relationship quality [123]. While research regarding romantic attraction has not studied behavior expressed during interaction in as much depth, prior work indicates that interaction has a profound influence on romantic attraction between potential partners.

Several studies looking at the influence of in-person interaction on romantic attraction have investigated ideal partner preferences. Some of this work demonstrated that theorized sex-differentiated mate preferences often do not match preferences *in situ* after in-person interactions with potential romantic partners [50,51,212]. For example, evolutionary psychology theorizes that men should value physical attractiveness more than women, and women should value earning potential more than men) [26]. However, studies have shown that physical attractiveness increased romantic attraction in both sexes after in-person interaction, with no statistically significant sex differences [50,117,133,156,219]. Income also was not significantly preferred more by women than men after in-person interactions, and the influence of earning potential was weaker than that of physical attractiveness for both sexes [50,67]. In another study of states

preferences from Fletcher's ideal preference list, the perceived presence or absence of desired traits in a potential partner did not predict romantic attraction to them after an in-person interaction [51].

Several of these studies posit that interaction influences romantic attraction because behavior exhibited during interaction may facilitate discovery and interpretation of traits that are otherwise unobservable, notably personality, e.g., [52]. A more in-depth discussion of how interaction behavior may affect evaluation of various traits and characteristics can be found in Chapter 3, which explores evaluation of potential romantic partners.

2.3.3 The influence of Circumstances on Romantic Attraction

Research has identified various circumstances external to the traits of a potential romantic partner or interactions with that partner that can influence romantic attraction. These circumstances are typically in regards to how potential romantic partners meet or encounter each other.

2.3.3.1 Mere Exposure. Mere exposure theory posits that people increase their liking of any stimulus, including people, as their exposure to or familiarity with that stimulus increases [25]. Moreland and Beach [166] demonstrated the mere exposure effect with a study of how often college students attended a particular class (students that attended the most were perceived as most attractive by other students). Reis and colleagues also provided support for the mere exposure effect, showing that increasing time of interaction between potential romantic partners increased their liking of each other [181]. Little and colleagues, however, demonstrated that mere exposure may have a

greater affect on women than men because men may prefer novelty in potential romantic partners more [150].

2.3.3.2 Physical Proximity. “People in close physical proximity often become attracted to one another as friends or as potential romantic partners” [73] (p. 83); also see [198]. For example, college students who sat near each other in class expressed stronger liking for each other [7], and in a separate study students had stronger relationships with each other as the number of weeks that they sat next to each other increased [32]. Similarly, Festinger and colleagues found that long-term romantic relationships are more likely to form between people who live geographically close to each other [57]. Some research suggests that the effects of physical proximity may be interrelated with effects of mere exposure [53,181].

2.3.3.3 Reciprocal Liking. Reciprocal liking refers to a person’s tendency to become attracted to someone who they believe is attracted to them [85]. In one experiment, males were found to exhibit increased attraction to females who exhibited signs of interest such as eye contact, attentive listening, and leaning in [85]. Some literature indicates that the reciprocal liking phenomenon reflects a desire to be generally liked by other people as a means of boosting self-esteem [207].

2.3.3.4 Physiological Arousal. Increased physiological arousal—or the excitement one may feel while in the presence of a potential romantic partner—has been shown to intensify feelings of attraction to potential romantic partners [70]. In one experiment, an

attractive female confederate interacted with men who were crossing a safe and stable bridge low to the ground, and men who were crossing a bridge very high above the ground. The female confederate gave her phone number to all of the men, and men who were crossing the high, relatively less safe bridge were more likely to call the phone number [48]. Dutton and Aron interpreted these results to suggest that men crossing the higher bridge were experiencing more physiological arousal when they encountered the female confederate, which in turn resulted in heightened attraction. In a similar experiment, Meston and Frohlich [163] demonstrated that people experienced more attraction to a photograph of a person after they had ridden a roller coaster versus while waiting in line to ride the roller coaster.

Physiological arousal does not increase attraction only in a positive direction. For example, White and colleagues had male participants jog in place to stimulate physiological arousal and then rate their attraction to a woman shown in a video who was either dressed to appear attractive or unattractive [225]. The results showed that men with heightened physiological arousal exhibited heightened attraction for the attractive woman and heightened revulsion for the unattractive woman as compared to men that did not participate in the jogging exercise.

2.3.3.5 Choice and Contrast. Choice of potential romantic partners—in terms of number and variety of potential partners—has been shown through speed dating studies to influence romantic attraction and decisions about potential romantic partners. Specifically, increasing the quantity of potential romantic partners can make one much more selective. As the number of participants at speed dating events increased from 18 to 42 participants, women said “yes” (desired to exchange contact information) to a smaller proportion of potential partners [67]. In a different study, participants at speed dating events were more likely to say “no” (not desire to exchange contact information) to all of their potential romantic partners as the variety of traits (e.g., age, height) exhibited across the pool of potential partners increased [144].

2.4 Summary

This chapter defined romantic attraction and reviewed research exploring various traits relevant to romantic attraction—such as physical attractiveness, demographic traits, personality, and relationship goals—as well as influences on romantic attraction that do not necessarily pertain to a potential partner’s traits, like physiological arousal. The next chapter reviews how people use social interaction to evaluate and make decisions about potential romantic partners.

CHAPTER 3

EVALUATING POTENTIAL ROMANTIC PARTNERS THROUGH INTERACTION

3.1 Introduction

Social interaction with a potential romantic partner has long been a preeminent method of evaluating them and realizing romantic attraction. Not only does (face-to-face) interaction enable one to evaluate the physical appearance of a potential romantic partner, it also provides signals of other attraction-relevant traits through a potential partner's behavior and dialogue.

While the previous chapter discussed various types of traits germane to romantic attraction, this chapter explores *how* people utilize social interaction to gather information about attraction-relevant traits and determine if they want to continue evaluation of a given potential romantic partner.

The chapter also discusses impression management and how this motive and respective behaviors from potential romantic partners may alter evaluations of them. The chapter concludes with a description of research that suggests difficulties for evaluating potential romantic partners in computer-mediated environments, of which online dating systems are an example.

3.2 Forming Impressions of Potential Romantic Partners through Interaction

Romantic attraction is the result of a continual evaluation of a potential romantic partner [13]. To evaluate someone as a potential romantic partner, one must form an impression

of that person. The process of impression formation, simply put, describes how one person perceives another. These impressions are often derived from multiple pieces of information gathered over time and multiple exposures to the potential partner. According to the Gestalt approach to impression formation, the various pieces of information collected about a person are not interpreted in isolation, but rather in the context of information already collected about the person [6,201]. As such, the overall impression of a person continually changes as more information is collected and interpreted about that person.

Some traits can be easily collected, interpreted, and synthesized into an overall impression because they are directly observable, such as a person's height or overall physical attractiveness. Other traits cannot be directly observed however, such as personality (individual psychological differences), attachment style, attitudes and values. This section discusses how people utilize social interaction to collect and interpret information about unobservable traits as part of the impression formation process.

The term "personality" will occasionally be used to describe prior research involving impression formation of unobservable traits. Since the referenced research did not all use the same model or operationalization of personality, the term is used in this chapter to refer broadly to individual psychological differences that guide behavior as opposed to a specific personality model (e.g., the big 5).

3.2.1 Evaluating Unobservable Traits through Signals

Signaling theory describes the extent to which a piece of information is considered a reliable indicator of an otherwise unobservable trait [40]. Signaling theory has roots in

evolutionary biology research to explain mate selection in the animal kingdom [235,236]. Within this evolutionary biology research, the reliability of a signal is determined by how likely it is to be “honest,” or correlated with the unobservable trait it is assumed to pertain to. The reliability of a signal is sometimes associated with its “cost”—the more costly it is for a signal to exist, in terms of resources needed to maintain it or dangers incurred by its existence, the more reliable the signal becomes [235]. For example, the long colorful tail of a peahen (the male version of a peacock) is considered a costly and thus reliable signal of its reproductive fitness because the tail requires additional resources to maintain and attracts predators [94,172]. The ability to procure resources and avoid predators would be traits that peacocks want their offspring to have, so they choose peahens with large tails to mate with.

In evolutionary biology, signal reliability is a byproduct of evolutionary processes [135], not conscious intention by the signaler (e.g., peahens do not consciously choose to develop their costly long tails in order to attract more females, they simply evolved that way). In humans, however, intention has an integral effect on signal reliability. People often want to influence how they are perceived by others, sometimes to the extent that they lie in order to manipulate the impression others form of them [42,84]. As such, signal reliability in humans is often contingent on the potential for deception [202].

Yet the potential for deception is not the only factor that can influence signal reliability in humans. As Donath points out, the meaning of a signal—or what trait it pertains to—is not universal, and may often be ambiguous [45,46]. “The interpretation of any signal is subtle and subjective” [46] (p. 238). People can interpret signals differently, and they may not be confident in their interpretations. This opens up the possibility that

people may misinterpret signals about personality traits of potential romantic partners even if those potential partners intended to be truthful (i.e., people may deem their interpretations of subsequent signals pertaining to a particular trait to clash with interpretations of previous signals). In this light, signal reliability in humans is affected by 1) the perceived potential for deception, and 2) the perceived likelihood of misinterpretation, or confidence that the signal's interpretation will align with subsequently collected information.

Donath demands: "we need [to] understand how signals acquire their meaning and to account for misinterpretation in analyzing the signaling process" [45] (p. 3). While not framed under signaling theory, research in social psychology has produced ample insight into how people interpret unobservable traits like personality from information collected about people, including potential romantic partners.

3.2.1.1 Social Interaction as a Method for Collecting Signals. A potential romantic partner's actions during social interaction may hold a wealth of signals regarding their unobservable traits. The way that a person interprets the behavior of another is called an attribution [73] (p. 153). The earliest work on attribution theory was by Fritz Heider, who distinguished between personal and situational attributions [106]. Deciding that a person's behavior is the result (and thus a signal) of their personal traits is a personal attribution. Deciding that a person's behavior is the result of the situation or circumstances surrounding the behavior is called a situational attribution. A common bias during attribution is the fundamental attribution error, which is the tendency to emphasize a person's traits (a personal attribution) as the believed cause for the person's behavior instead of the situation or circumstances (a situational attribution) [131]. If people have a

tendency to make personal attributions from behavior, a common way to experience unobservable traits of a potential romantic partner is through behavior expressed in interaction with that partner.

Several studies that have investigated interaction between potential romantic partners have explored the (dis)connection between stated mate preferences and romantic attraction after face-to-face interaction [50–52]. This work shows that while stated mate preferences predict romantic attraction in hypothetical and abstract contexts (such as after reading a list of traits that a potential partner supposedly possesses), they do not predict romantic attraction after in-person interaction with potential partners [52]. Two theoretical explanations have been proposed for how interaction affects impression formation of potential romantic partners to spur this disconnect: construal-level theory and contextualization of personality.

According to construal level theory, people perceive objects, events, and other people in either a high level or low level mental construal [216]. Entities perceived in a high level mental construal are psychologically distant, such as in time, physical distance, or hypothetical distance (i.e., having to imagine the object, event, or person) [173,185]. Eastwick and colleagues [51,52] posit that evaluation of hypothetical potential romantic partners—such as when reading a list of traits possessed by a potential partner—is conducted in a high level mental construal in which traits are evaluated as abstract, decontextualized schemas (e.g., a person has a general and abstract concept of what an “intelligent” person is like, and they use that abstract understanding to determine if the trait is attractive or unattractive). In contrast, entities perceived in a low level mental construal are “psychologically near (e.g., directly experienced in the ‘here and now’)”

[52] (p. 635). Eastwick and colleagues posit that evaluations of potential romantic partners in live interactions are done in a low level mental construal in which traits are detected and interpreted through “specific, contextualized behaviors” rather than abstract concepts of what a trait generally means [51] (p. 2).

Eastwick and colleagues leveraged Solomon Asch’s seminal social perception research [6] to provide a further explanation for why interpretations of traits signaled through interactive behavior may differ from traits interpreted in isolated, abstract scenarios. Asch’s research showed that perceptions of individual, unobservable traits (e.g., “intelligent” and “cautious) change in the context of other unobservable traits believed to be possessed by a particular person (e.g., “cold” or “warm”) [6]. Eastwick and colleagues postulate that behavior and statements expressed during interaction may contain multiple signals of unobservable traits that enable one to re-contextualize and reinterpret previous signals. “In a live interaction, the additional context, detail, and complexity could cause participants to shift their interpretation of the meaning of the partner’s traits, and thus the comparison between participants’ ideals and a partner’s traits would not be as straightforward as when they examine traits listed on a profile” [52] (p. 635).

3.2.1.1.1 *Implicit Personality: Traits Assumed from Other Signals.* Asch’s work on social perception is a subset of an extensive amount of research that has explored how people interpret signals of unobservable traits to assume the presence of other traits. Implicit personality theory is an umbrella term for a series of theories and effects that describe the patterns or biases that influence trait perception and overall impression formation when an evaluator has limited information about a person

[128,177]. Consistency theory, for example, refers to how people infer the possession of traits that are consistent with impressions already formed [56]. As Fugere and colleagues write, “we have and use ideas about which types of traits usually go together. So, if you learn that Sandy is enthusiastic, you might also expect her to be talkative and sociable” [73] (p. 28).

An extensive amount of implicit personality research was instigated by Asch who, as stated above, demonstrated that “the characteristics forming the basis of an impression do not each contribute a fixed, independent meaning” (p. 268) but rather change meaning in the context of other known traits [6]. Asch extrapolated on this idea by distinguishing between central and peripheral traits. In one study he gave participants a list of personality traits that described a hypothetical person and observed that particular traits (such as the words “warm” and “cold”) had more bearing on the overall impression formed than other traits (such as “polite” and “blunt”) [6].

Asch was also the first to demonstrate the negativity bias, or the tendency for negative information to hold greater weight on an overall impression than positive information. He observed that adding the word “cold” to a list of otherwise positive personality traits had a greater influence on the formed impression than adding the word “warm” to a list of negative traits [6]. Baumeister and colleagues [10] chronicled additional support for the negativity bias when they reviewed studies showing that negative personality traits (e.g., “abusive”) had greater influence on overall impressions than positive ones (e.g., “truthful”). They explain that “the unfavorable [traits] lowered the global impression rating more than a simple additive or average model would predict, unlike the favorable traits, which did not exert an influence beyond averaging” [10] (p.

345). Rozin and Royzman [191] postulate that negative information has a bigger effect on impression formation because it is relatively rare compared to positive information.

Asch also provided early work on the primacy effect, in which traits learned about first are more likely to have a greater influence on the overall impression formed than traits subsequently learned [122,153]. This may be because traits learned about later are contextualized by earlier discovered traits [6]. As Asch describes, “when the subject hears the first term, a broad, uncrystallized but directed impression is born. The next characteristic comes not as a separate item, but is related to the established direction” [6] (p. 271-272). While Asch observed the primacy effect using a list of traits describing a hypothetical person, Kelley observed the effect when asking participants to form an impression of a real person after interaction [125].

3.2.1.2 Signals from Physical Attractiveness. While technology has provided various ways for one to assess the physical appearance of a potential romantic partner (e.g., a photograph or a video), social interaction has historically been a central opportunity for evaluating the physical attractiveness of potential romantic partners. Several studies indicate that a person’s physical attractiveness is often perceived to signal unobservable traits. Specifically, the term “halo effect” has been used to describe the tendency of people to ascribe positive personality traits to people considered physically attractive [168,171]. For example, Dion and colleagues showed photos of an attractive person, a person of average physical appearance, and an unattractive person to university students [44]. They found that attractive people from the photos were perceived to have more positive personality traits such as trustworthiness and extraversion than the unattractive people and people of average attractiveness. Similarly, Wade and DiMaria

[218] found that physically attractive people were perceived as more trustworthy and friendly. Landy and Sigall [137] found a halo effect between physical attractiveness and intelligence, as indicated through a written essay. They attached photos of an attractive or unattractive female to a written essay and asked male college students to rate the quality of the essay. The attractive women were given higher rating on both well-written and poorly written essays [137].

3.3 Using Interaction to Make Decisions about Potential Romantic Partners

People form impressions of potential romantic partners in order to decide whether to continue pursuing them for a particular relationship. This section reviews theories pertaining to this decision process for interpersonal relationships in general—of which romantic relationships are a subtype—with a focus on how social interaction dictates this decision process.

3.3.1 Social Exchange Theory

“Relationships grow, develop, deteriorate, and dissolve as a consequence of an unfolding social-exchange process which may be conceived as a bartering of rewards and costs both between the partners and between members of the partnership and others” [114]. According to social exchange theory, decisions to continue pursuing a potential or actual romantic partner for a particular relationship are the result of a continual cost-benefit analysis [209]. If the perceived or expected rewards of pursuing a potential romantic partner outweigh the perceived or expected costs, then pursuit or evaluation of that potential partner will continue. If the costs outweigh the rewards, then pursuit or evaluation of the potential romantic partner will discontinue.

Research has indicated that perceived rewards and costs of continuing evaluation of a potential romantic partner are not informed purely by the impression formed of the potential romantic partner. For example, costs and rewards can be influenced by one's perception of their own attractiveness. Montoya [164] discussed the concept of comparison levels, explaining that people who are high in attractiveness themselves will have higher standards for attractiveness in their partners. In other cases, pursuit of a potential romantic partner will be discontinued if the potential partner is considered too attractive and thus likely to reject the respective suitor. Greitmeyer [95] provided an evolutionary basis for this decision process, explaining that people do not want to waste time and resources on people who may ultimately not be attracted to them. This potential waste of resources on a potential partner who is likely to reject the suitor may represent a formidable cost that leads to the disqualification of a potential romantic partner from continued pursuit or evaluation.

Perceived costs and rewards of pursuing a potential romantic partner can also be affected by choice—having alternative potential partners to pursue [209]. Similarly, Levinger positioned “the presence of attractive alternatives” as key factor in the cost-benefit analysis for remaining in an existing relationship [145]. As demonstrated in the previous chapter, increasing the choice or quantity of potential romantic partners makes people more selective. For example, increasing the number of potential partners at speed dating events decreased the proportion of potential partners that a participant agreed to exchange contact information with [67]. Research suggests that increasing the quantity of potential romantic partners may induce an assessment mindset during evaluation [58]. “An assessment mindset stresses critical evaluation of entities, states, or goals in

comparison to available alternatives” [58] (p. 29). As quantity of potential romantic partners increases, an assessment mindset would make one more critical of each potential partner and therefore more likely to overemphasize the costs of pursuing any one of them for continued evaluation, especially when it is known that alternative potential romantic partners exist. This is supported by research showing that too many choices can induce choice overload, in which people simply avoid making decisions and reject all options by default [116,124,157].

3.3.2 Behavioral Theory

Behavioral Theory introduces social interaction as the fundamental mechanism through which people assess the costs and benefits of maintain/pursuing a relationship [20,90–92]. Under behavioral theory, decisions to continue pursuing or maintaining a relationship are the result of an accumulation of behavioral exchanges during interactions [123]. As Karney and Bradbury explain, “rewarding or positive behaviors enhance global evaluations” of the relationship, while negative behaviors diminish evaluations of the relationship” [123] (p. 5).

Most research rooted in behavioral theory studied partners in ongoing romantic relationships as they engaged in a particular context of interaction called problem-solving discussions [123]. These are interactions in which partners contend with differences of opinion to reach consensus on a particular topic [123]. Examples of problem-solving interactions that romantic relationship partners were required to engage in during prior studies included the inventory of marital conflicts (IMC), in which couples had to come to an agreement concerning which partner in a hypothetical marriage was most at fault in vignettes describing common marital conflicts [174]. Another example included the

personal problem discussion, in which couples had to discuss a major problem in their relationship and attempt to reach a mutually satisfying resolution to the problem [119].

Research into problem-solving discussions showed that regardless of the outcome of the interaction (i.e., whether a problem was resolved or a task was accomplished), the more positively couples rated their problem-solving interactions, the more satisfied they were with their relationships at multiple points in time [119,158] and the less likely they were to divorce in the future [92]. Furthermore, couples in one study leveraging the IMC remarked how the problem-solving discussions they engaged in “elicited a good sample of their [partners’] behavior outside the experimental setting” [174] (p. 446). Overall, this body of research demonstrated a “link between behaviors exchanged in problem-solving discussions and change in marital satisfaction” [123] (p. 24).

This has led the vulnerability-stress-adaption (VSA) model—a leading model of romantic relationship development—to position adaptive processes (interactions between relationship partners) as the central determinant of relationship quality and the arbiter through which partners’ unobservable traits (e.g., personality, attachment style) and external circumstances affect the relationship [123].

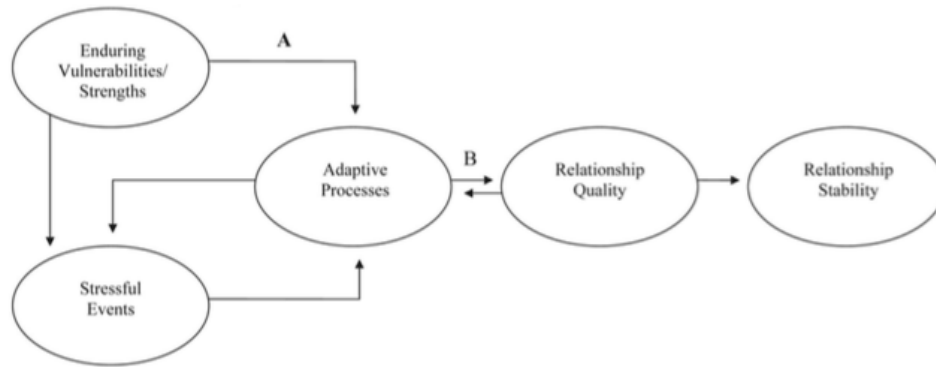


Figure 3.1 VSA model of relationship development. Enduring strengths and vulnerabilities are “stable characteristics of the partners (e.g., personality traits, ethnicity, experiences in the family of origin).” Stressful events are “the stressful events and circumstances that couples encounter.”

Source: [87] (p. 35)

In terms of the VSA model, the problems through which behavioral theory studies contextualize interactions between romantic couples serve as manufactured or emphasized stressful events/circumstances. Each partner’s personality (enduring strengths/vulnerabilities) is then manifested through behavior expressed while addressing the problem or task with one’s partner. Tension, arguments, or struggles to work together during problem-solving interactions—deemed “punishing or negative behaviors” [123]—may signal a clash of personalities and spur negative evaluations of the relationship over time, which can lead to relationship dissolution. On the contrary, having enjoyable experiences during problem-solving interactions (what Karney and Bradbury call “rewarding or positive behaviors”) may signal cohesion of personalities and spur positive evaluations and satisfaction with the relationship.

While research applying behavioral theory to evaluations of potential romantic partners is rare, prior studies that demonstrated interaction having an influence on attraction between potential romantic partners [50,51,181] would suggest that behavior

during interactions and attributions (unobservable traits signaled) from this behavior play a role in decisions regarding potential romantic partners.

3.3.3 Uncertainty Reduction and Predicted Outcomes

Uncertainty reduction theory (URT) and predicted outcome value (POV) theory are two additional theories that position interaction as a focal point in decisions to continue evaluating or pursuing a potential romantic partner. Uncertainty reduction theory posits that when interacting with a stranger, one's primary concern is to reduce uncertainty or to increase predictability of the stranger's future behavior [11].

Sunnafrank expanded on URT, positing that people are motivated to reduce uncertainty about a person specifically for the purpose of better predicting the value of future interactions and with them [206]. A positive predicted outcome increases attraction and leads to continued or escalated interactions in the future, while a negative predicted outcome leads to decisions to lessen the frequency of future interactions or terminate the relationship completely [188].

Prior research has demonstrated that romantic attraction to potential partners met at a speed dating event is significantly associated with predicted outcome values [112].

3.4 Impression Management's Effect on Potential Romantic Partner Evaluation

Forming impressions of potential romantic partners can be a challenging and complex process because people have a vested interest in manipulating how they are perceived by others. "Virtually everyone is attentive to, if not explicitly concerned about how he or she is perceived and evaluated by other people" [139]. This concern is the basis of impression

management, or the act of self-presentation, which has been theorized in general interpersonal contexts, but which also applies to romantic contexts.

Erving Goffman theorized impression management as a way to explain the “theatrical performances” that we undertake in our everyday social interactions to shape the way people see us [84]. According to Goffman, people attempt to manage their impressions through their actions and words because they want people to perceive them a certain way. Impression management motives and behavior may complicate evaluation of potential romantic partners because the self-perception that one aims to present may hide, exaggerate, or distort traits that are germane to romantic attraction.

Research suggests that people may be dissuaded from deceiving or presenting a self-enhanced/exaggerated version of self to others if they believe they may fail to validate this image through subsequent behavior or actions [194]. However, risk of rejection increases tendencies to present a self-enhanced version of self [134]. This suggests that people may be tempted to exaggerate or over-emphasize traits that they perceive to be attractive if they believe a potential romantic partner may reject them otherwise.

3.5 Evaluating Potential Romantic Partners in Computer-Mediated Environments

Most of the research regarding romantic attraction influences and evaluation of potential romantic partners cited thus far was conducted in a face-to-face modality. Computer-mediated communication (CMC) is a unique modality for impression formation and impression management regarding potential romantic partners because people are entirely

or largely reliant on signals to interpret another's traits, including traits that are typically observable in the physical world like physical appearance. As such, computer-mediated environments impose particular advantages for self-presentation and disadvantages for evaluation of strangers.

Computer-mediated communication (CMC) was largely synonymous with text-based messaging interaction during early research endeavors in the 1980s [38,127]. In this early research it was believed that relationship formation—and the impression formation process that precipitates this formation—was not possible through text-based messaging because “CMC possesses fewer nonverbal (e.g., dress, facial expression, posture, mimicry), contextual, and auditory cues than face-to-face interaction does” [58] (p. 33). However, Walther demonstrated through social information processing theory that people can convey and evaluate information for relationship development through CMC despite the absence of these cues [220]. For example, people consider time between messages [140], emoticons [43], and word choice [223] as signals of various unobservable traits.

Studies have revealed that newly acquainted individuals can actually experience greater attraction when they interact via CMC compared to face-to-face [118,161,210]. This is often attributed to the hyperpersonal effect, which describes how the reduced cue environments of CMC result in a tendency to form overly positive impressions of strangers [221]. The triggers of the hyperpersonal effect mirror the two factors that influence signal reliability in humans: misinterpretation and deception. In CMC people tend to “fill in the gaps using their own mental schemas or other known information about the [message] sender” when they have limited or ambiguous information [58] (p.

34). The tendency to “fill in the gaps” with mental schemas and assumptions based on information already collected echoes impression formation tendencies outlined in implicit personality theory and construal level theory as explained earlier in the chapter. In line with these theories, unobservable personality traits would be particularly susceptible to misinterpretation in CMC.

CMC also enables increased control over one’s self-presentation relative to face-to-face interaction because users can dictate most if not all of the information that is conveyed about them [161,221,222]. This means people have a greater ability to craft deceptive signals and intentionally engineer a more advantageous self-presentation through CMC than in the physical world.

The most common CMC environments for discovering, evaluating, and self-presenting to potential romantic partners are online dating systems [98]. These systems and their designs are discussed in detail in the next chapter.

3.6 Summary

This chapter delves into how people inform their decisions to continue or discontinue pursuit of a potential romantic partner, with a particular focus on interaction. The chapter also discussed how self-presentation motives can affect or complicate the process of evaluating potential romantic partners’ personalities. The chapter concludes by describing theorized difficulties with potential romantic partner evaluation in computer-mediated modalities, of which online dating systems are an example. The next chapter introduces and discusses online dating systems and their designs in detail.

CHAPTER 4

ONLINE DATING SYSTEMS

4.1 Introduction

Over the past century new technology has been invented or adapted to improve the pursuit of and engagement in romantic relationships, such as contraception, newspaper personal ads, and video dating services [78].

In the new millennium, the Internet has ushered in a variety of new tools that can be used to assist in one's pursuit of romance. For example, people have discovered their eventual marriage partners on social networking systems such as *Facebook* and online video games like *World of Warcraft* [98]. Yet while these types of Internet services have facilitated the discovery of romantic partners for some people, they were not designed intentionally to improve the pursuit of romance.

In contrast, online dating systems are Internet services designed specifically to facilitate the discovery of potential romantic partners [107], and they have had considerably more influence on the discovery of eventual romantic partners than other types of Internet services [98]. This chapter reviews online dating systems and how these systems are designed.

The chapter begins by introducing online dating systems and reviewing statistics about use of these systems. The design of online dating systems is then discussed in depth. This discussion of system design is divided into two sections: system interface components that facilitate evaluation of potential romantic partners and self-presentation to potential romantic partners, and system interface components that facilitate the

discovery of potential romantic partners. The chapter concludes by framing online dating systems as a subset of social matching systems, which entails a review of the concept of a match and how a match is defined in online dating systems.

4.2 Online Dating System Use and Demographics

Use of online dating systems has risen drastically since the inception of *match.com* in 1995. What was once seen as a last resort for finding a romantic partner is now more socially acceptable and even desired—people low in dating anxiety are actually more likely to use online dating systems than those high in dating anxiety [217]. As of 2015, 15% of U.S. adults have used an online dating system, an increase from 10% in 2013 [199], and 3% in 2008 [200]. Use of online dating systems is unrelated to income and education level [217], but usage does vary by age group. Online dating system use is most prevalent amongst younger adults: in 2015, 27% of adults ages 18-24 had used an online dating system, up from 10% in 2013 [199]. Online dating system use is also common amongst older adults: over 20% of U.S. adults ages 25-34 and 35-44 have used an online dating system, and over 10% of U.S. adults ages 45-54 and 55-64 have used an online dating system [199].

Online dating system users typically desire to meet potential romantic partners and form romantic relationships in the physical world [55,96,214]. Some of the longest standing online dating systems like *match.com* and *eHarmony* advertise specifically for long-term romantic relationship goals like marriage [87]. The influence that online dating systems have had on marriage is well documented: today one in three marriages begin online [34], and online dating systems are the most common way that marriage partners

meet online [98]. Research indicates that users also use online dating systems to find partners for short-term romantic goals like casual sexual encounters [15]. Some online dating systems such as *Tinder* and *Grindr* have reputations linked to casual sex pursuits [15,165], while others such as *OkCupid* and *Plenty of Fish* accommodate a variety of relationship goals including long-term dating, short-term dating, and platonic friendships. Some online dater systems target particular user demographics beyond relationship goal. For example, *Grindr* and *Scruf* cater exclusively to gay online daters [68]. Online dating systems have also emerged around religion, with *Christian Mingle* and *JDate* targeting Christian and Jewish singles, respectively. In terms of ethnicities, *BlackPeopleMeet.com* is designed solely for African American singles, and *2RedBeans* is intended for Asian users. *Our Time* has surfaced as an online dating system specifically for senior citizens.

Users can access online dating systems in a number of ways. Some online dating systems, like *OkCupid*, *Plenty of Fish*, and *match.com*, can be accessed through a browser on desktop or laptop computers as well as through mobile apps on iOS and Android devices. Other online dating systems, sometimes called mobile dating apps, can be accessed only through mobile devices. Examples include *Grindr*, *Tinder*, and *Coffee Meets Bagel*.

With an understanding that online dating systems continue to grow in popularity amongst various user demographics to find partners for both long-term and short-term romantic relationships, the remainder of this chapter delves into the design of online dating systems. We divide this discussion of system design into two sections: system design for facilitating evaluation of potential romantic partners and self-presentation to potential romantic partners, and system design for facilitating the discovery of potential

romantic partners. A more extensive list of commercial online dating systems is discussed throughout the chapter to exemplify the various design approaches to facilitating evaluation and self-presentation, and user discovery.

4.3 Online Dating System Interface Components for Evaluation and Self-Presentation

Online dating system users want to meet potential romantic partners in the physical world [55,96,214]. This desire necessitates evaluation of potential romantic partners online for the purpose of in-person meetings. Users also desire to self-present information about themselves that will enable—and influence—evaluations that potential romantic partners form of them. Online dating system design facilitates evaluation and self-presentation with two types of interface components: profile pages and components for dyadic communication between two users.

4.3.1 Profile Pages

Every user in most online dating systems has a profile page, which curates and conveys mostly self-provided information about them. Users typically create their profile page when they sign up for an online dating system, and they can modify their profile page at later times as they wish. Profile pages in online dating systems have three nearly-universal sections: profile pictures, dedicated trait fields, and open-ended text fields. Some profile page designs also include sections related to social networking system integration and reputation.

4.3.1.1 Profile Pictures. In most profile page designs, users can upload one or more photos of themselves. Profile pictures are often the focal point of profile pages, and in mobile dating apps they usually take up a substantial amount of screen real estate when first accessing a profile page.

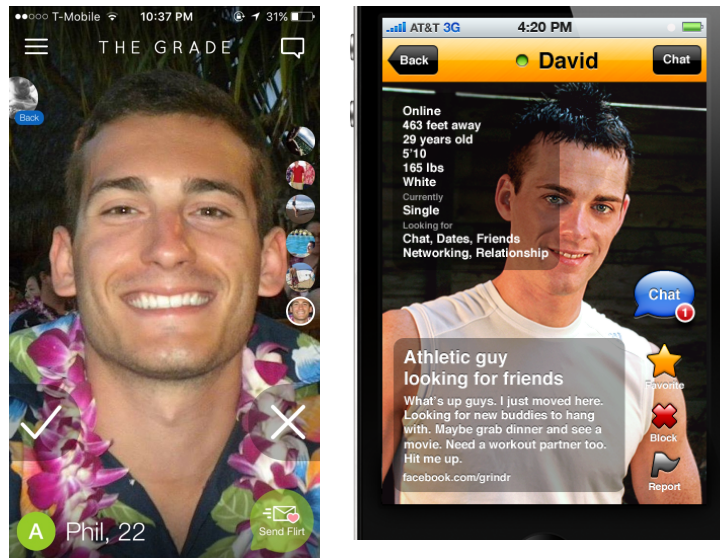


Figure 4.1 *The Grade* (left) and *Grindr*, a mobile dating app for men-seeking-men (right), adopt a profile page design that focuses on profile pictures by using the user's main profile picture as the background of their profile page.

Source: *The Grade* [<http://www.thegradedating.com>, accessed March 2018] (left), *Grindr* [<https://www.grindr.com>, accessed March 2018] (right)

In browser-based versions of online dating systems, profile pictures are typically shown as thumbnails on the profile page, and can be clicked on to access larger versions of the pictures. Some browser-based online dating systems, such as *eHarmony*, dedicate a bulk of screen real estate to profile pictures upon first access to a profile page. This approach requires users to click or scroll to access other sections of the profile page.

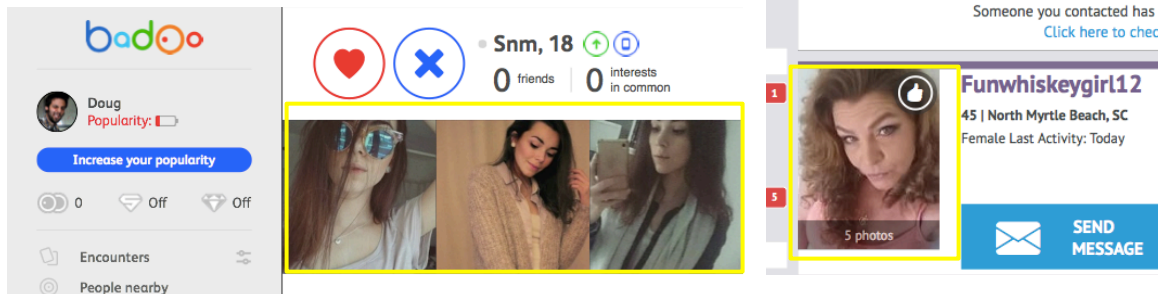


Figure 4.2 In *Badoo* (left), thumbnails of all profile pictures are viewable on the profile page, while on *Our Time* (right), a thumbnail of one profile picture is shown with an indicator of how many additional pictures can be accessed by clicking on the thumbnail.

Source: *Badoo* [<http://www.badoo.com>, accessed March 2018] (left), *Our Time* [<https://www.ourtime.com>, accessed March 2018] (right)

Online dating systems often limit users to uploading no more than 10 profile pictures. However, some online dating systems like *Tinder* and *OkCupid* let users link their *Instagram* accounts to their profile page so potential romantic partners can access more pictures of them.

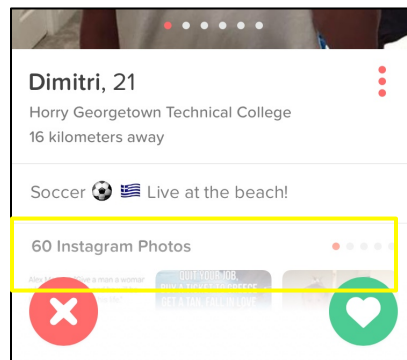


Figure 4.3 *Tinder*, a mobile dating app, lets users connect their *Instagram* accounts to their profile pages. This lets users show a virtually unlimited number of pictures on their profile page.

Source: *Tinder* [<https://tinder.com>, accessed March 2018]

4.3.1.2 Profile Videos. While profile pictures are the standard way of conveying physical appearance in online dating profile pages today, some mobile dating apps enable users to include short videos into their profile pages, similar to videos posted on *Instagram* and *Vine*.

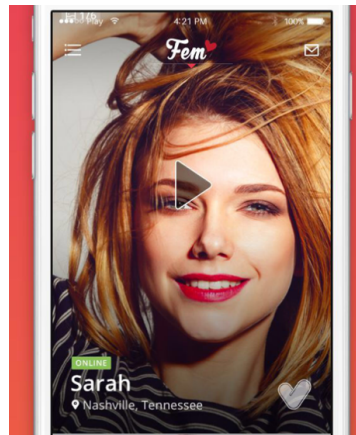


Figure 4.4 *Fem*, a mobile dating app for lesbians, has a profile page design that lets users upload both pictures and short videos.

Source: *Fem* [<https://fem.mingle.com>, accessed March 2018]

4.3.1.3 Dedicated Trait Fields. In addition to profile pictures, profile page designs also include short text fields dedicated to specific traits or pieces of information. Three nearly universal dedicated fields in profile pages are for user name, age, and location.

4.3.1.3.1 Usernames. Usernames are either pseudonyms chosen by the user at the time of signing up for the system, or their real first name, which online dating systems extract from the user's *Facebook* page. Most mobile dating apps display the user's real first name, while most browser-based online dating systems display a pseudonym for each user.

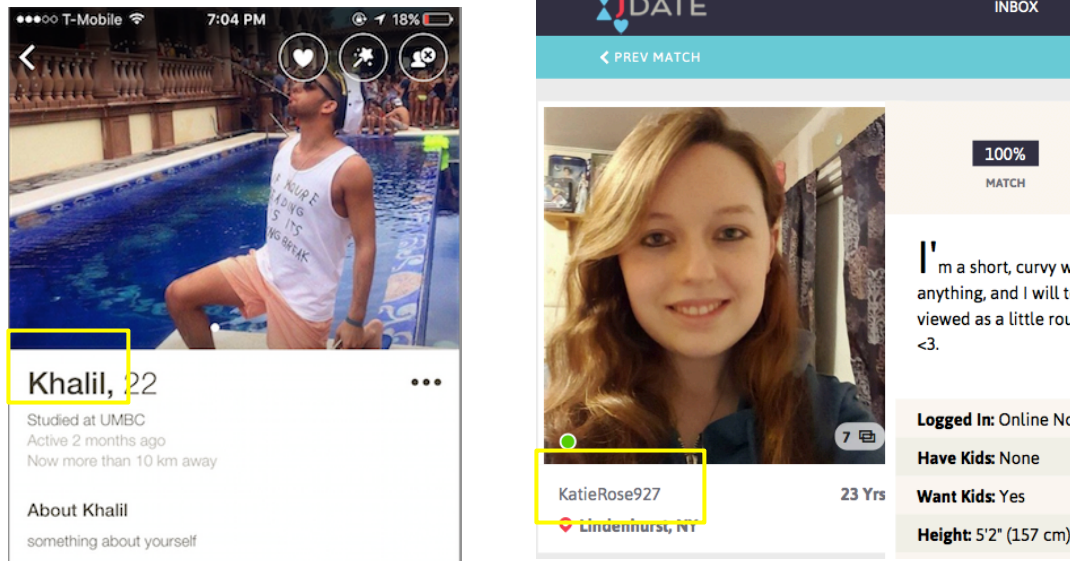


Figure 4.5 *Happn*, like many mobile dating apps, displays a user’s real first name as extracted from their *Facebook* account (left). *JDate*, like many browser-based online dating systems, has users identify themselves with a pseudonym (right).

Source: *Happn* [<http://www.happn.com>, accessed March 2018] (left), *JDate* [<https://www.jdate.com>, accessed March 2018] (right)

4.3.1.3.2 Location. Location is commonly depicted in one of three ways on profile pages: 1) as absolute location, 2) as relative distance and 3) by co-location.

Many browser-based online dating systems present an absolute location of a potential romantic partner, which requires the user to state their location through an area code, which the system translates into a city name. Mobile dating apps commonly operationalize location as relative distance between two potential romantic partners in real time as determined through GPS on the users’ smart phones. Relative location in profile page designs can vary in terms of granularity, from how many miles/kilometers away the profile owner is from the user viewing the profile page (e.g., *Tinder*, *The Grade*) to how many feet away the profile owner is (e.g., *Grindr*). A third conceptualization of location in mobile dating apps is co-location. This entails notifying

users of potential romantic partners that were at the same geographic location at the same time of day.

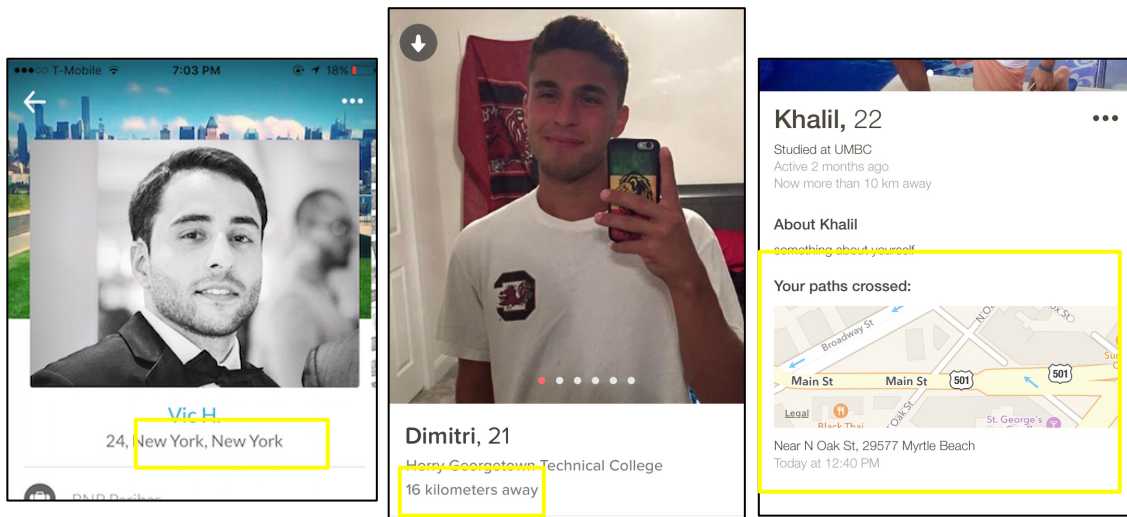


Figure 4.6 *Hinge* (left) shows location as a user’s city of residence, which the user manually inputs when signing up for the system. *Tinder* (middle) enables discovery of potential romantic partners by relative distance (miles/kilometers) in real time. *Happn* (right) enables discovery between two potential romantic partners by notifying them when they were physically present at the same location at the same time of day. *Happn* shows the location on a map and indicates at what time both users were at the location.

Source: *Hinge* [<http://www.hinge.co>, accessed March 2018] (left), *Tinder* [<https://tinder.com>, accessed March 2018] (middle), *Happn* [<http://www.happn.com>, accessed March 2018] (right)

4.3.1.3.3 *Demographic and Lifestyle Traits.*

Age is a nearly universal demographic trait included in online dating system profile page designs, but there are other demographic traits that commonly have dedicated fields in profile page designs, notably: height, weight, ethnicity, religion, occupation, education level, college attended, hometown, gender, astrology sign, hair color, eye color, number of pets owned, income level, and sexual orientation. Users typically provide answers in text fields dedicated to these traits through multiple choice or drop down lists rather than typing in answers manually.

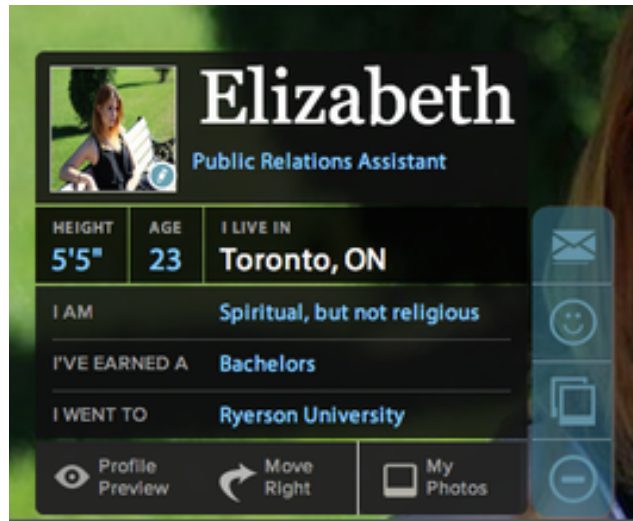


Figure 4.7 *eHarmony* shows multiple fields dedicated to demographic traits in the first section of its profile page design, including height, age, religion, education level, and college attended.

Source: eHarmony [http://www.eharmony.com, accessed March 2018]

Dedicated fields for lifestyle traits (values, interests, and preferences) are also common, particularly for traits such as smoking habits, drinking habits, and drug use. Some online dating systems also enable users to list activities that they commonly engage in, as well as dimensions of religiosity (i.e., aspects of their lifestyle pertaining to their religion, such as how often they go to a church/synagogue).

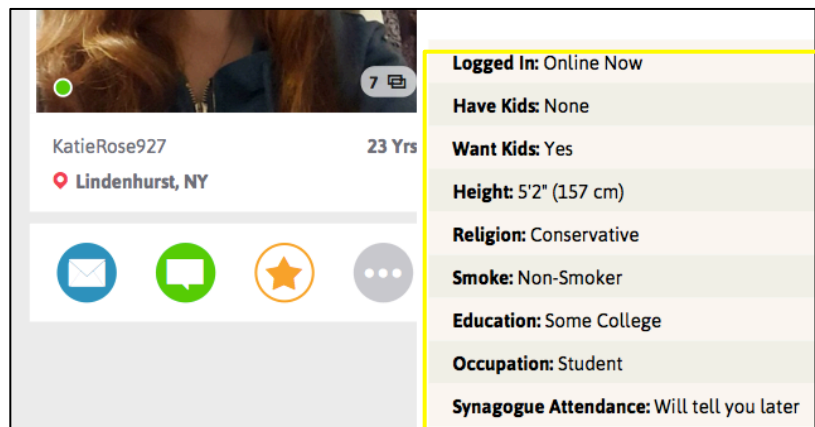


Figure 4.8 *JDate* has dedicated fields for demographic and lifestyle traits in its profile page design.

Source: *JDate* [<http://www.jdate.com>, accessed March 2018]

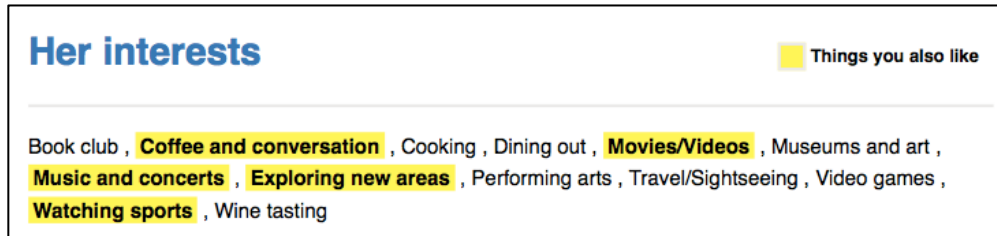


Figure 4.9 *Match.com* highlights similar answers to self-reported activities of interest.

Source: *Match.com* [<http://www.match.com>, accessed March 2018]

4.3.1.3.4 Relationship Goals. Online daters can also convey and evaluate relationship goals (e.g., long-term relationship) and traits pertaining to relationship goal (e.g., desire for children, willingness to relocate) through dedicated trait fields in some profile page designs. Users can usually select multiple relationship goals in such online dating systems.

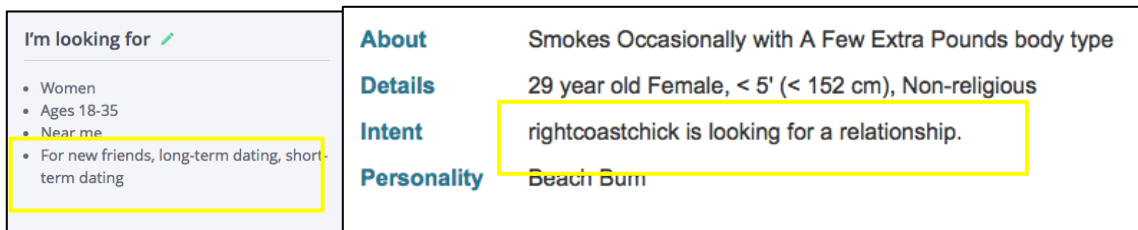


Figure 4.10 *OkCupid* (left) lets users convey multiple relationship goals in their profile pages. *Plenty of Fish* (right) lets users distinguish between long-term relationship goals (“a relationship”) and desires for casual sexual encounters.

Source: *OkCupid* [<http://www.okcupid.com>, accessed March 2018] (left), *Plenty of Fish* [<https://www.pof.com>, accessed March 2018] (right)

4.3.1.4 Free-Text Fields. A third nearly-universal element of profile pages is a field or fields for users to input free-text (i.e., they can type what they want as opposed

to selecting from predetermined answer choices). In some online dating systems, free-text fields are preceded by prompts such as “the one thing I am most passionate about...” or “I spend a lot of my time thinking about...” In other online dating systems, free-text fields are unprompted or preceded with an ambiguous heading such as “about me.”

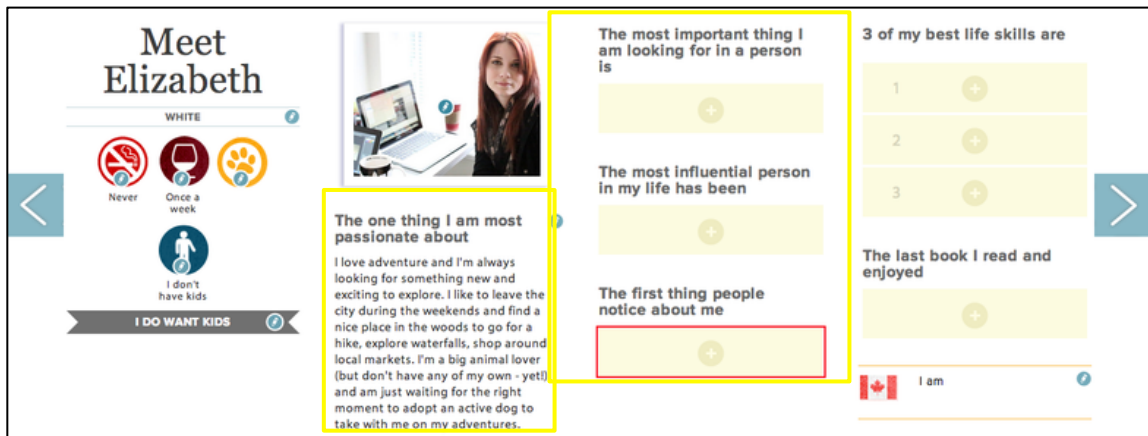


Figure 4.11 eHarmony gives multiple prompts for how to fill in free-text sections.

Source: eHarmony [<http://www.eharmony.com>, accessed March 2018]

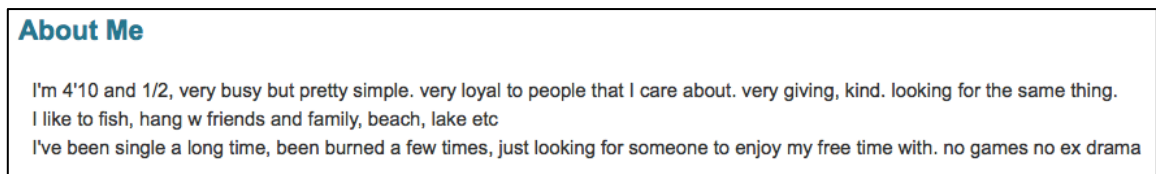


Figure 4.12 Plenty of Fish provides a free-text field that is unprompted, being labeled with the ambiguous header “About Me.”

Source: Plenty of Fish [<http://www.pof.com>, accessed March 2018]

4.3.1.5 Matching Algorithm Survey Answers.

In some online dating systems users are enabled or required to answer an extensive list of survey questions about themselves and their ideal romantic partner, which are used by matching algorithms to recommend statistically compatible partners to each other (matching algorithms are discussed in section 4.4 regarding interface components for user discovery).

These questions often pertain to attitudes and values relevant to dating (e.g., “is jealousy healthy in a relationship?”). Users can view each other’s answers to these questions in profile pages.

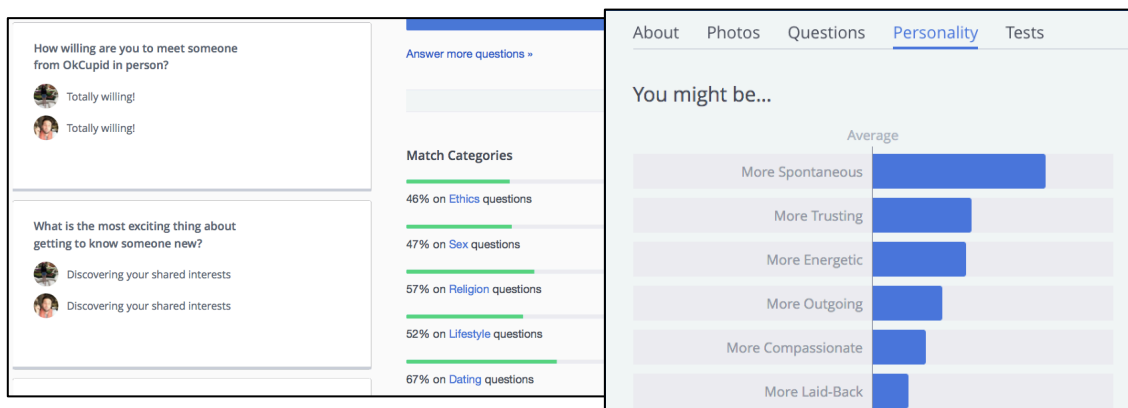


Figure 4.13 In *OkCupid* (left), users can quickly compare survey answers across a variety of survey categories. *OkCupid* also lets users compare a potential partner’s survey answers against the general user base (right).

Source: *OkCupid* [<http://www.okcupid.com>, accessed March 2018]

4.3.1.6 Social Networking System Integration.

A relatively new addition to online dating system profile page design is social networking system integration, such as with *Facebook* and *Instagram* (see section 4.3.1.1 for how *Instagram* affects the number of profile pictures available in a profile page). Integrating with *Facebook* typically

enables users to view mutual friends (i.e., people that the user and profile owner are both “friends” with on *Facebook*) and mutual interests.

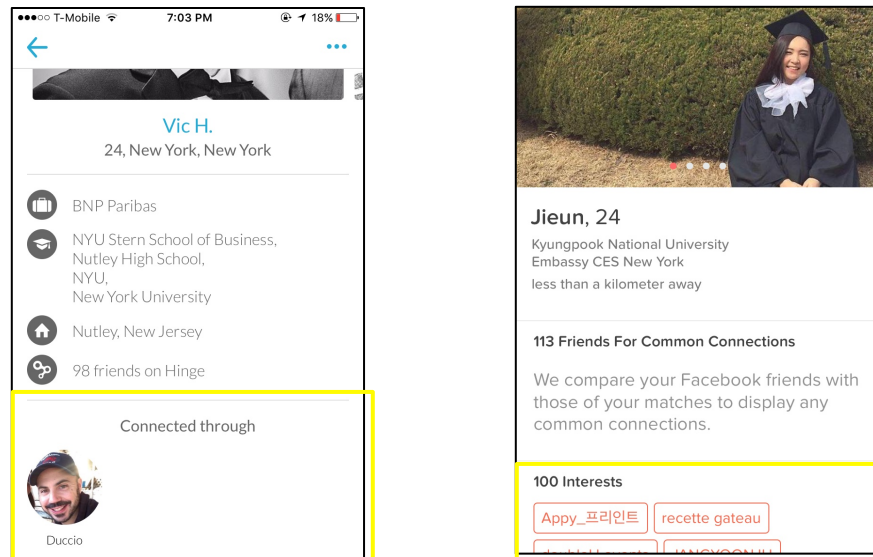


Figure 4.14 *Happn* (left) shows mutual *Facebook* friends in each user’s profile page. *Tinder* (right) shows the user’s interests as derived from their *Facebook* account.

Source: *Happn* [<http://www.happn.com>, accessed March 2018] (left), *Tinder* [<https://www.tinder.com>, accessed March 2018] (right)

4.3.1.7 Reputation. A less common feature of online dating profile page designs is reputation. In systems such as *Grouper* and *Badoo*, users can “like” another user’s profile page, similar to how users of social networking systems can “like” content. These “likes” are then showcased on the respective user’s profile page. *The Grade* has a similar profile element called “peer review,” which is an aggregate score based on answers to the question “Is <name> a quality person?” which any user viewing the respective profile page can answer (see figure below). Peer review ratings are then aggregated by the system and depicted on the respective user’s profile page as a letter grade. *The Grade* also curates reputation independent of deliberate user feedback by monitoring “likes” of user’s profile page and response rates to their messages, which are

also depicted as letter grades on the user’s profile page. Similarly, *Badoo* gives “awards” to users based on their account activity, such as how often they message other users.

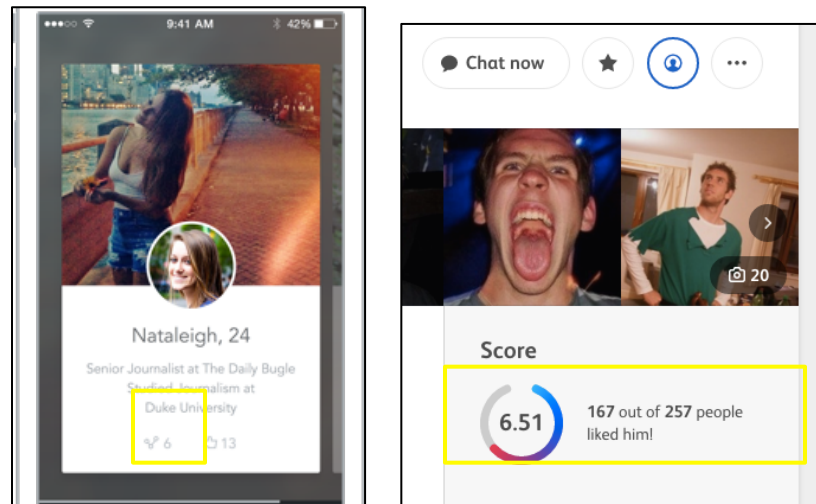


Figure 4.15 *Grouper* (left) and *Badoo* (right) show the number of users that “liked” the respective profile page.

Source: *Grouper* [<http://www.joiningrouper.com>, accessed December 2016] (left), *Badoo* [<https://www.badoo.com>, accessed March 2018] (right)

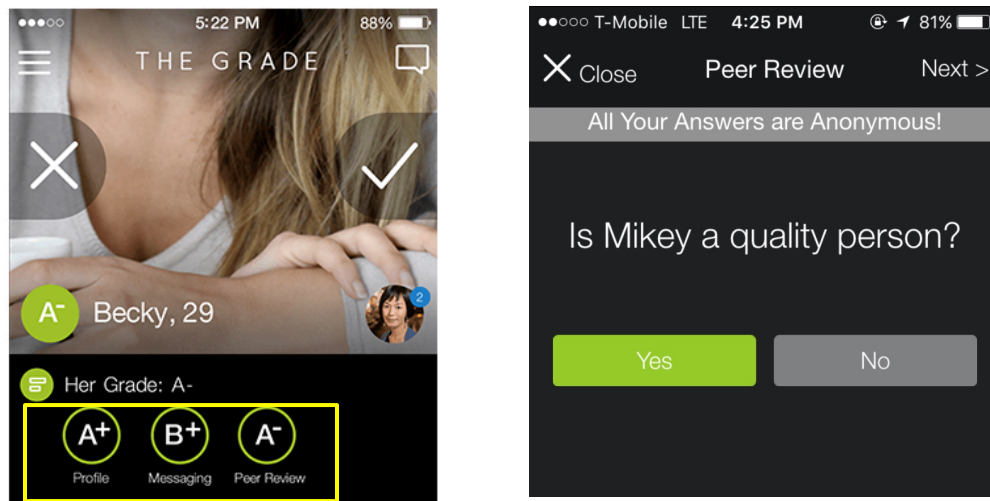


Figure 4.16 *The Grade* shows aggregate ratings for the user’s profile page (determined by profile “likes”), messaging (determined by message response rates), and peer review (an aggregate of answers to the question “Is <name> a quality person?”).

Source: *The Grade* [<http://www.thegradedating.com>, accessed March 2018]



Figure 4.17 Badoo displays “awards” on profile pages based on user activity, such as how often they communicate with other users.

Source: Badoo [http://www.badoo.com, accessed December 2016]

4.3.2 Interaction

In most online dating systems, users can directly and privately interact with each other one-on-one. Interaction through an online dating system can be used to evaluate potential romantic partners and self-present to potential romantic partners. Unlike profile pages, which are relatively static and do not change depending on which user is viewing them, interaction enables users to tailor their evaluation and self-presentation practices to specific potential romantic partners. Interface components for interaction between users fall into two categories: personalized interaction and generic interaction.

4.3.2.1 Personalized Interaction. Most online dating systems facilitate personalized interaction between users, meaning users can personally create the content that they privately exchange. In most cases personalized communication between potential romantic partners is a necessary step before meeting in-person because users that desire an in-person meeting with each other need to organize the meeting or otherwise exchange contact information to communicate outside of the online dating system. In this subsection we review different interface components for personalized interaction in online dating systems.

4.3.2.1.1 Text-Based Messaging. By far the most common interface component for personalized interaction is text-based messaging. On browser-based online dating systems, the text-based messaging interface is akin to an e-mail inbox (and sometimes called an “inbox”). Messages are organized into conversations with a respective user, and by clicking on a conversation a user can view messages to and from the respective user. In mobile dating apps, text-based messaging interfaces are visually similar to SMS interfaces and other chat apps, with messages being organized by conversation with respective users. Some online dating systems now enable users to embed GIFs and emoticons in their messages. For example, *Tinder* integrates with GIPHY to let users search for and embed GIFs into their messages, while *Badoo* includes a set of “stickers,” which are oversized emoticons that can be embedded into messages.

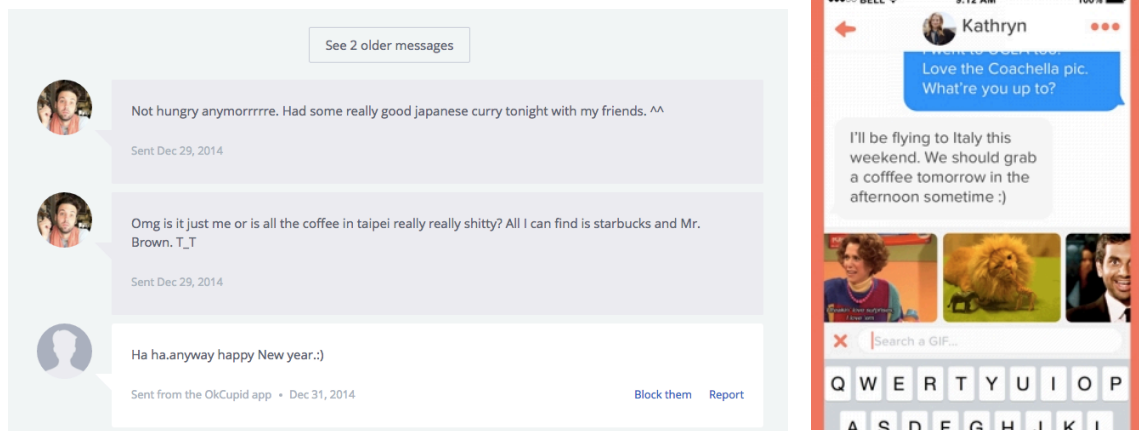


Figure 4.18 An example of a text-based messaging conversation in the browser-based online dating system *OkCupid* (left). On the right is an example of a messaging conversation in the mobile dating app *Tinder*, with the ability to search for and embed GIFs into messaging conversations.

Source: *OkCupid* [<http://www.okcupid.com>, accessed December 2016] (left), *Tinder* [<https://www.badoo.com>, accessed March 2018] (right)

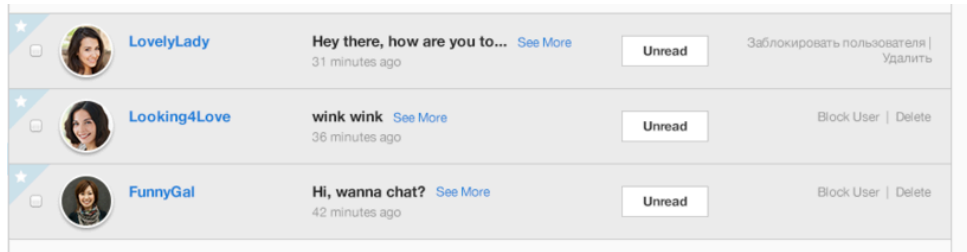


Figure 4.19 An example of a message inbox in the browser-based online dating system *Zoosk*.

Source: *Zoosk* [<http://www.zoosk.com>, accessed December 2016]

While rare, other online dating systems such as *eHarmony*, attempt to structure users' messaging conversations by providing conversation topic ideas to users with pre-defined answer choices.

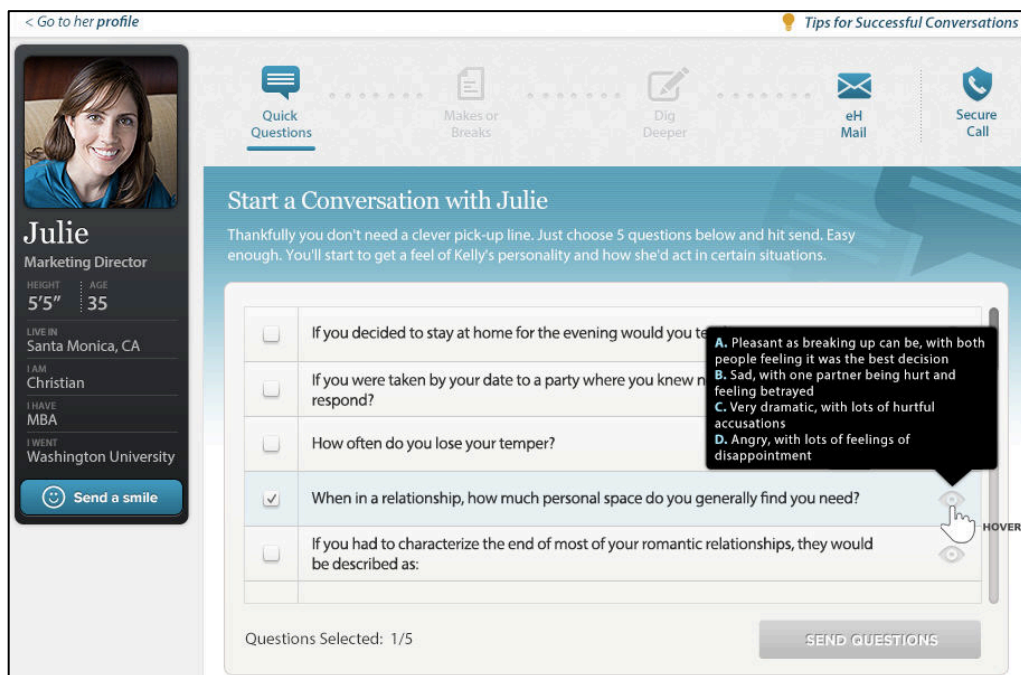


Figure 4.20 *eHarmony*, an online dating system for people pursuing long-term romantic relationships, attempts to structure users' conversations by letting users select particular multiple-choice questions that they would like a potential romantic partner to answer while messaging each other.

Source: *eHarmony* [<http://www.eharmony.com>, accessed December 2016]

4.3.2.1.2 Voice Chat. While text-based messaging is the predominant—and often only—interface component for personalized communication in online dating systems, some mobile dating apps are beginning to incorporate richer communication interfaces. *Plenty of Fish*, for example, incorporates a voice chat option in their mobile app, but only female users can initiate voice chats with other users.

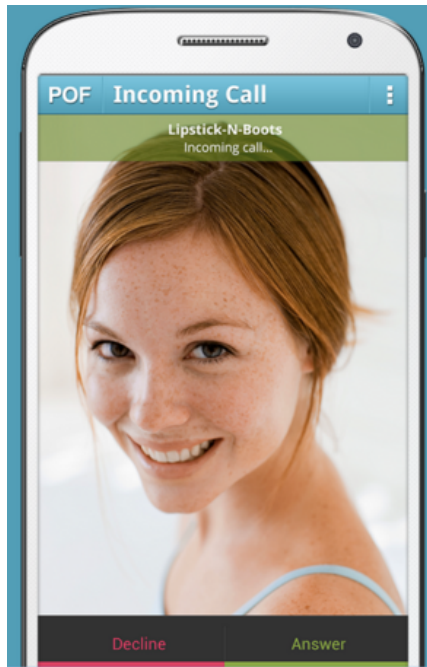


Figure 4.21 A female user trying to initiate a voice chat with another user in *Plenty of Fish*.

Source: Plenty of Fish [http://www.pof.com, accessed December 2018]

Some other dating apps enable users to record and send voice messages to each other, which are embedded and accessible in text-based message conversations.

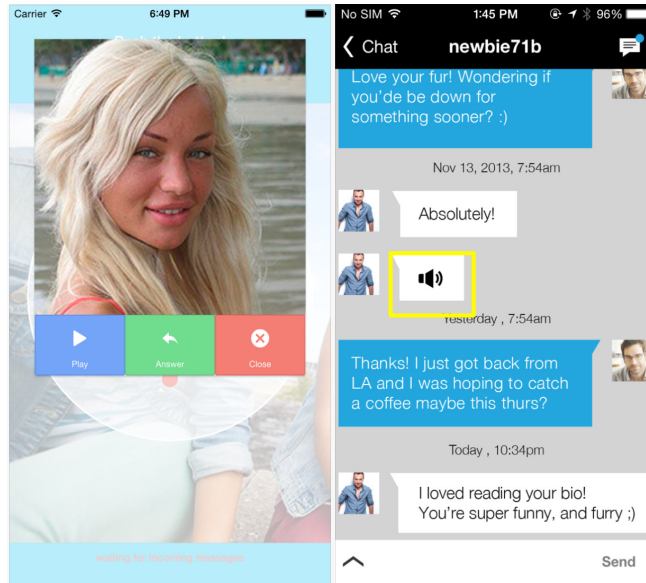


Figure 4.22 In *Echo* (left), users get notified by the system when they receive a voice message from a potential partner. In *GuySpy* (right), a mobile dating app for gay men, voice messages are embedded in text-based message conversations.

Source: *Echo Voice Dating* [<https://itunes.apple.com/us/app/echo-voice-dating/id1012385525?mt=8>, accessed December 2018] (left), *GuySpy* [<https://www.guyspy.com>, accessed December 2018] (right)

4.3.2.1.3 Video Chat. Another rich interaction interface implemented in some mobile dating apps is video chat, which operates similarly to *Skype* video chats, but through the online dating system.

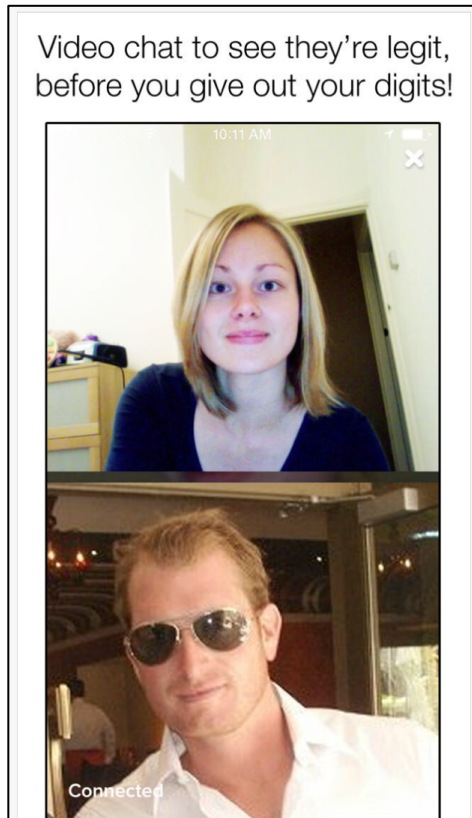


Figure 4.23 In *Date.FM*, users can initiate video chats with potential partners through the app in addition to exchanging text-based messages.

Source: Date.FM [http://www.date.fm, accessed December 2018]

4.3.2.2 Generic Communication. In some online dating systems users can communicate through generic indicators of interest, which are commonly called “likes,” “gifts,” or “favorites.” Users cannot personalize these generic indicators and they typically do not have a more complex meaning than to convey interest in a user. Generic indicators of interest can usually be sent by clicking a button on the respective user’s profile page.

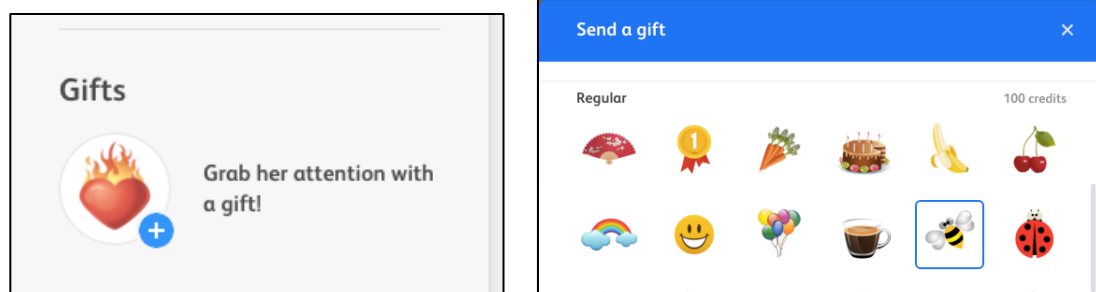


Figure 4.24 *Badoo* lets users send a “gift” (an emoticon) to a potential romantic partner by clicking a button on the respective user’s profile page and selecting one from a finite list of options. Unlike personalized messages, *Badoo* users have to pay money to send gifts.

Source: Badoo [http://www.badoo.com, accessed March 2018]

4.3.2.3 Reciprocated Interest. In many browser-based online dating systems, users can send personalized messages to any user that they discover in the system by clicking a messaging button on the respective user’s profile page. In many mobile dating apps, however, users must first exchange generic indicators of interest before the system allows them to engage in personalized interaction. These generic indicators of interest can be sent by clicking a button or performing a particular action on the respective user’s profile page.

In mobile dating apps that require users to reciprocate interest before being able to message each other, interest is typically expressed through a swiping mechanism: a user makes a swiping motion in one direction to express liking of a potential romantic partner’s profile page, and a swiping motion in the opposite direction to express disliking. The same action can also be performed by clicking a “heart” or “checkbox” button on the profile page to express liking, and an “x” button to express disliking. The system notifies the user if the respective potential romantic partner reciprocates interest, which automatically creates a messaging conversation in the user’s inbox.

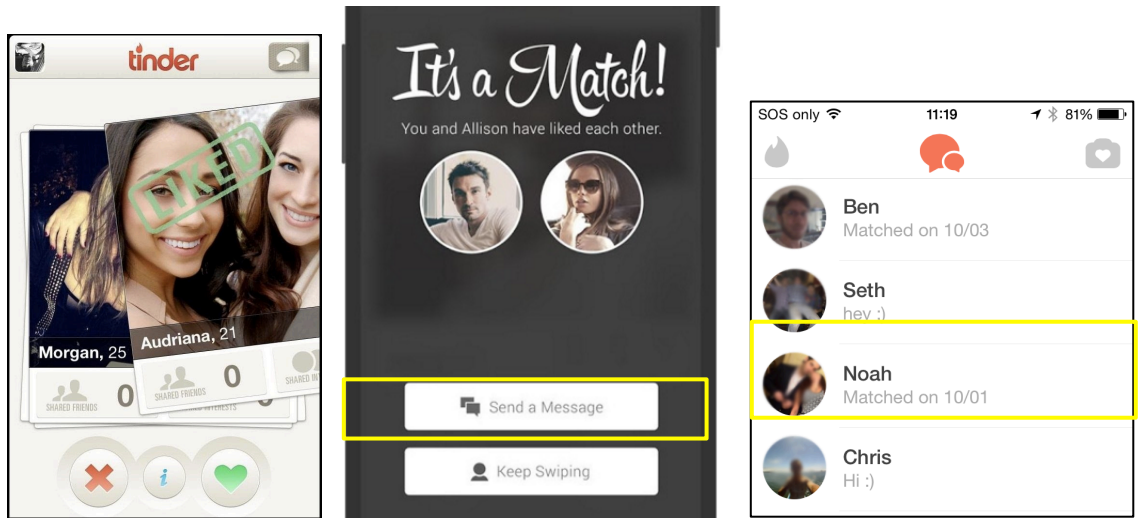


Figure 4.25 The screenshot on the left depicts *Tinder*'s swiping interface. Swiping right or clicking the “heart” button indicates liking of the potential romantic partner. Swiping left or clicking the “x” button indicates disliking. *Tinder* notifies the user if a potential romantic partner has reciprocated interest in them (middle), which allows those two users to exchange messages. *Tinder* automatically creates a conversation in the user's inbox once interest is reciprocated with a potential romantic partner (right).

Source: *Tinder* [<http://www.tinder.com>, accessed March 2018]

In most cases in these mobile dating apps, users are not aware that a potential romantic partner “liked” them until after they have opted to send their own generic indicator of interest. However, some mobile dating apps allow users to send a special form of generic indicator of interest (e.g., a “super like”) to a limited number of potential romantic partners in a given time period, which recipients can be made aware of before deciding to send their own generic indicator of interest.

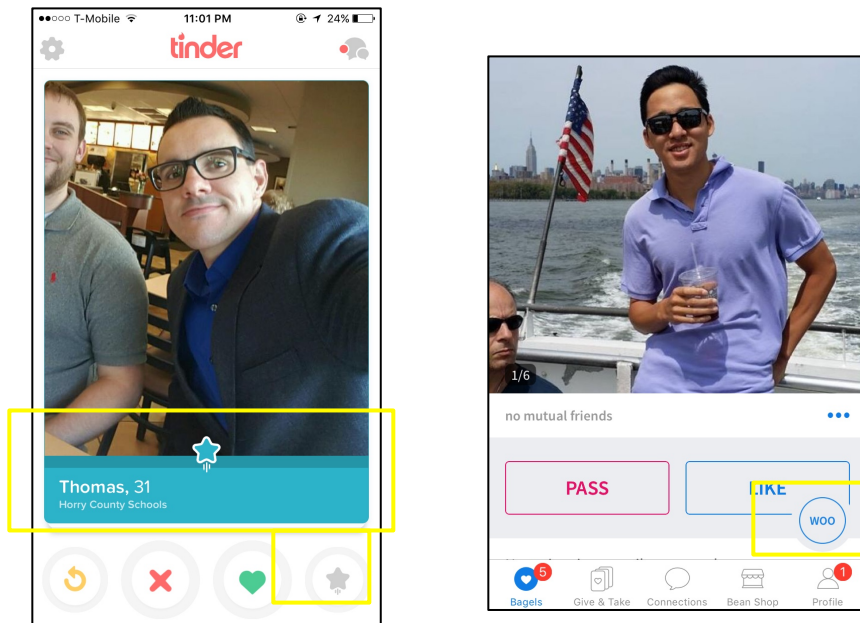


Figure 4.26 In *Tinder* (left), users can send a “super like” to one potential romantic partner in a 12-hour period. In these cases, users are aware that a potential romantic partner has “super liked” them before deciding whether or not to send their own generic indicator of interest. In *Coffee Meets Bagel* (right), users can send a “woo” to potential romantic partners, which costs a certain number of “beans” that users can earn by using the system for extended amounts of time or spending money. Sending a “woo” makes the recipient aware of one’s interest before they make their own decision to indicate interest.

Source: *Tinder* [<http://www.tinder.com>, accessed March 2018] (left), *Coffee Meets Bagel* [<https://coffeemeetsbagel.com>, accessed March 2018] (right)

4.3.2.3.1 Absence of Personalized Communication. Some newer online dating systems do not have any interface components for personalized communication. Instead, the online dating system organizes in-person meetings on behalf of users who have reciprocated generic interest in each other. One example is *Grouper*, which organizes dates for six people (two users that have reciprocated interest in each other, and two friends that they each bring along). *Grouper* schedules the in-person meeting on a night that both parties are mutually available at a location chosen by *Grouper*. In these

system designs, evaluation and self-presentation of and to potential romantic partners can only occur through profile pages before the in-person meeting.

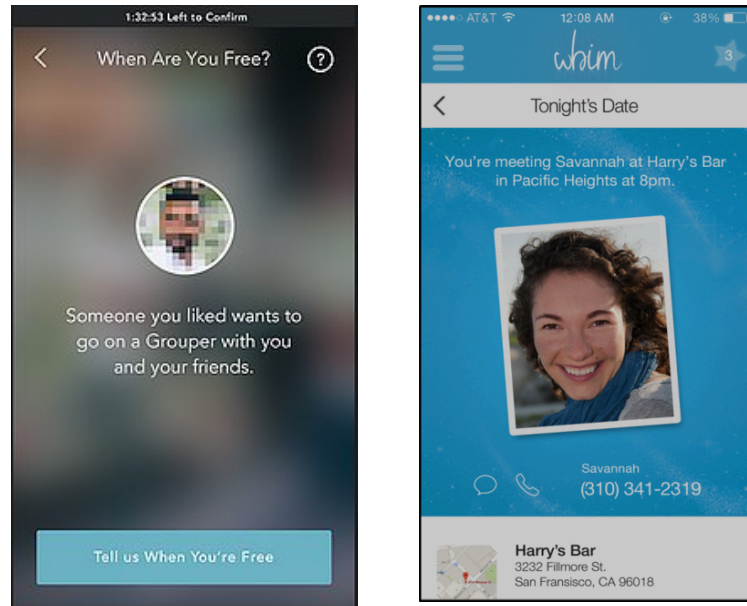


Figure 4.27 *Grouper* (left) does not have a personalized interaction interface. Instead it notifies a user when a potential partner has reciprocated interest in their profile page and asks the user for their availability so it can schedule a date on the user's behalf. *Whim* (right) notifies a user with a place and time for a date the app scheduled with a potential partner who reciprocated interest in the user's profile page.

Source: *Grouper* [<http://www.joingrouper.com>, accessed December 2016] (left), *Whim* [<https://joinwhim.com>, accessed March 2018] (right)

4.4 Online Dating System Interface Components for User Discovery

Users must be able to discover potential romantic partners in an online dating system before they can engage in evaluation and self-presentation. There are a variety of ways that online dating system designs facilitate discovery of potential romantic partners.

4.4.1 Discovered by Potential Romantic Partners

One way that a user can discover potential romantic partners in an online dating system is to be made aware that a potential romantic partner has already discovered them.

4.4.1.1 Profile Page Viewed by Potential Romantic Partners.

In some online

dating systems, users are provided a list of potential romantic partners that viewed their profile page.

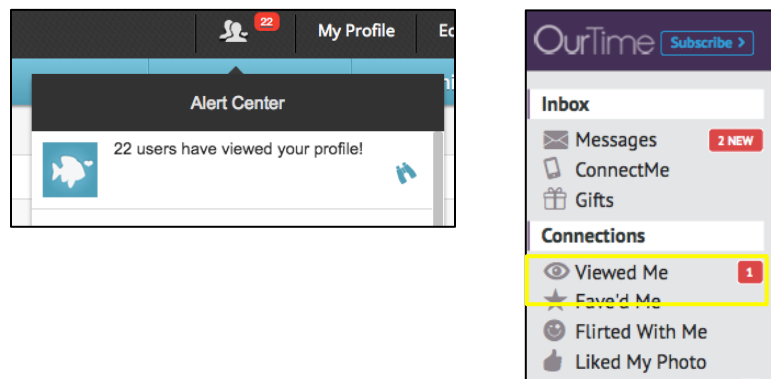


Figure 4.28 *Plenty of Fish* (left) and *Our Time* (right) alert users when others have viewed their profile page. Clicking on the alert shows a list of those users with links to their profile pages.

Source: Plenty of Fish [http://www.pof.com, accessed March 2018] (left), Our Time [https://www.ourtime.com, accessed March 2018] (right)

4.4.1.2 Contacted by Potential Romantic Partner.

In some online dating

systems, users may also discover others by being contacted by potential romantic partners. Sometimes online daters first discover potential romantic partners by receiving text-based messages from them (in systems that do not require reciprocated interest before text-based messaging). In some online dating systems, users may also discover potential romantic partners by being notified that they received a generic indicator of interest from the respective potential partner.

4.4.2 Recommendations from Matching Algorithms

Browser-based online dating systems commonly feature matching algorithms that statistically determine which users are likely to be initially romantically attracted to each

other and ultimately compatible for a satisfying long-term romantic relationship. The results of these matching algorithms can influence which potential romantic partners a user discovers in an online dating system.

The most common approach to matching algorithms in online dating systems is content-based filtering. In content-based matching algorithm approaches, users answer survey questions about themselves and the person they prefer to be matched with [2,151]. The system’s algorithm then computes matches and facilitates discovery of users based on these algorithmic matches.

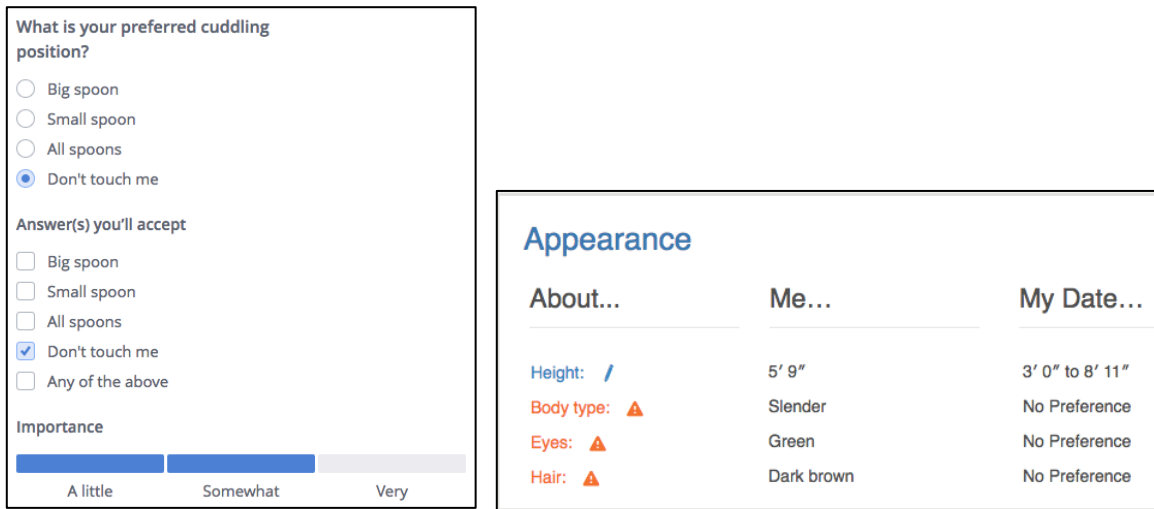


Figure 4.29 *OkCupid* users can answer thousands of match questions about themselves and their ideal potential romantic partner (screenshot on left shows examples). Users determine the weight that each question has on their match percentages by indicating the importance of each survey question. Match percentage with a respective potential partner is based on survey questions that they have both answered. *Match.com* (right) uses a content-based matching algorithm based on preferences that users state for an ideal romantic partner (“my date”) in their profile page. These preferences revolve mostly around demographic traits and some lifestyle traits like smoking habits.

Source: *OkCupid* [<http://www.okcupid.com>, accessed March 2018]

Collaborative filtering is another matching algorithm approach that entails learning users' preferences through behavior as opposed to questionnaires that explicitly ask users about their preferences. Some online dating systems use collaborative filtering to learn users' romantic partner preferences through their system-use behavior. The system then notifies users or emphasizes the existence of potential romantic partners with traits that match preferences implied from their system-use behavior. For example, the online dating system *Zoosk* learns a user's romantic partner preferences from their system-use behavior, such as which profiles they view and which users they send messages to. The system then influences discovery of potential romantic partners by notifying users of potential romantic partners that have demographic and lifestyle traits similar to those users that they have already demonstrated a preference for through behavior. Collaborative-filtering based approaches are similar to match percentage approaches to user discovery because they do not restrict user discovery to only users that the algorithm deems appropriate. Rather, users are free to browse and search for potential romantic partners on their own accord.

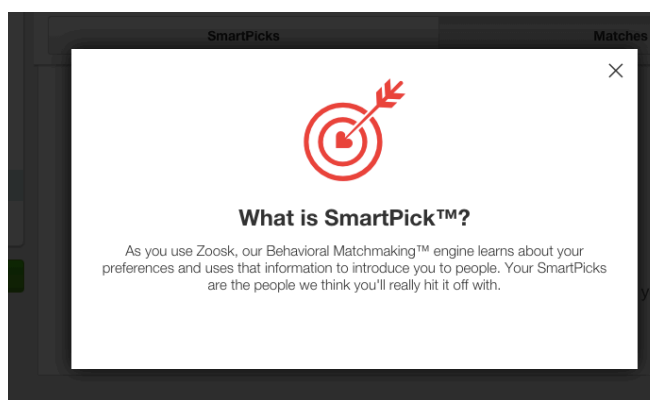


Figure 4.30 *Zoosk* uses a collaborative filtering-based matching algorithm that introduces potential romantic partners in a page called “SmartPick” based on users’ implicit preferences from system-use behavior.

Source: Zoosk [http://www.zoosk.com, accessed March 2018]

Some online dating systems feature matching algorithms that combine collaborative filtering with content-based filtering. *RSVP*, an Australian online dating system, matches users based on answers to survey questionnaires as well as their system-use behavior and emphasizes discovery of potential romantic partners that are conducive to users' implicit and explicit preferences.

Online dating systems that incorporate matching algorithms influence discovery of potential partners through the ways that they inform users about potential partners recommended to them. Online dating systems do this in one of two ways: through a browse/search page or through a restricted browse page.

4.4.2.1 Browse/Search Pages. In one implementation of matching algorithms, users' survey answers are used to compute a match percentage with each potential romantic partner in the system. Within these surveys users typically answer questions about themselves and explicate the answers that they prefer their ideal romantic partners to have. Match percentages are based on how closely two users match each other's stated preferences.

Online dating systems that follow a match percentage approach facilitate discovery of potential romantic partners through a browse/search page. Such a page provides a list of potential romantic partners along with their match percentage. The initial list of potential romantic partners on the browse/search page is often based on default criteria set by the system such as match percentage, location, and select demographic traits. The page usually also features search fields that enable users to refine their list of matches with more specific criteria of their choosing for demographic and lifestyle traits such as smoking habits, age, or height. Ultimately, match percentages are

implemented mostly as a guide to help users wade through hundreds or thousands potential romantic partners. Users can choose to ignore match percentages and the default filtering criteria set by the system conduct searches for potential romantic partners with a different combination of traits.

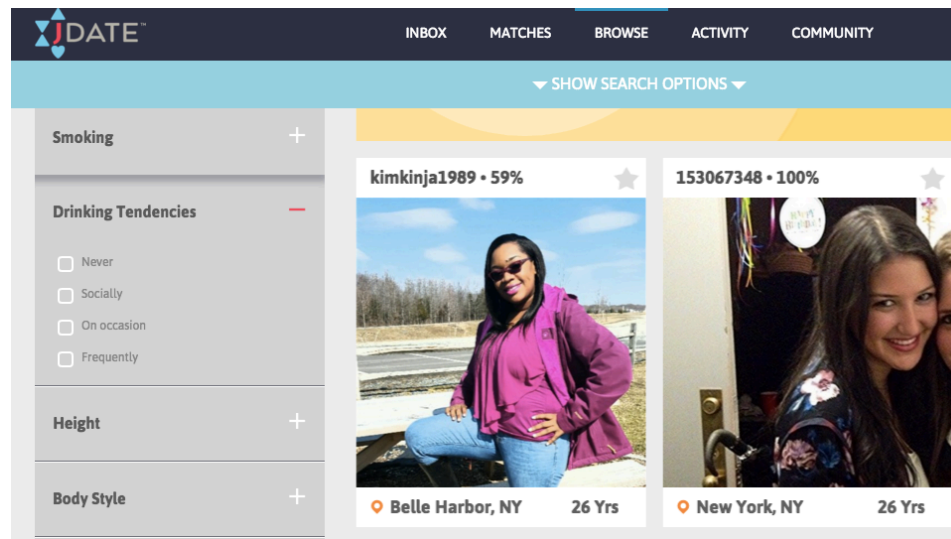


Figure 4.31 *JDate*, an online dating system for Jewish singles, shows a list of potential romantic partners with their match percentages on the “browse” page. The user can refine the list or conduct a new search for users with specific demographic and lifestyle traits using various options on the top and left-hand parts of the page.

Source: JDate [http://www.jdate.com, accessed March 2018]

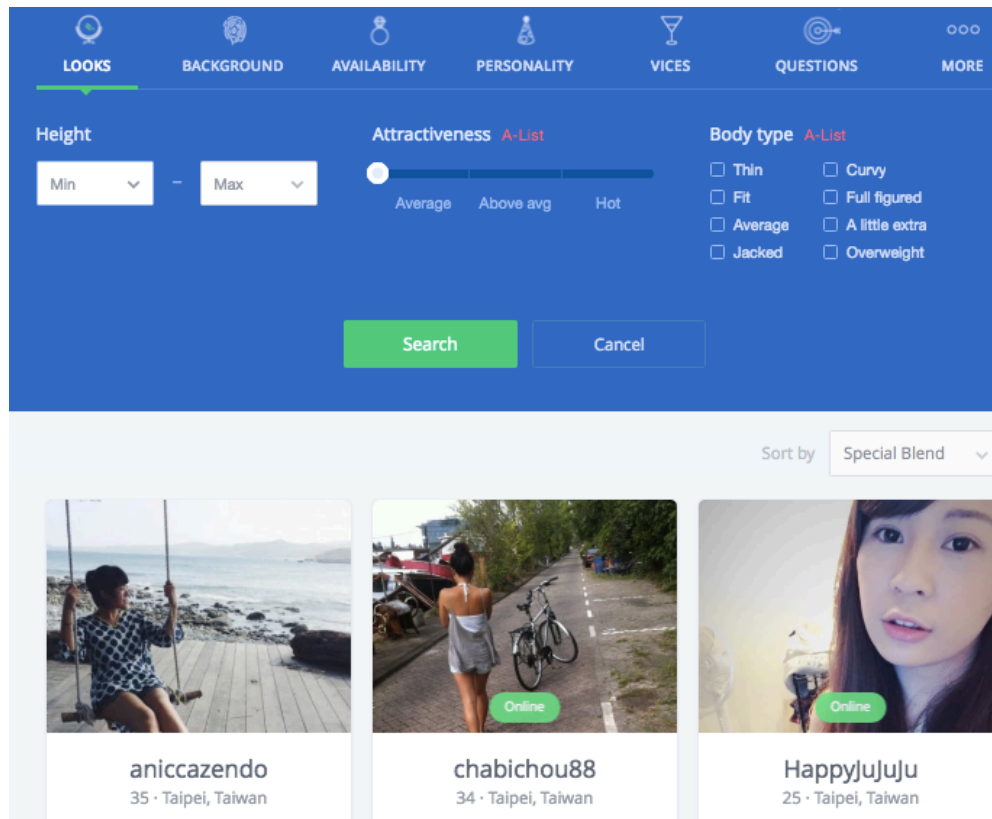


Figure 4.32 *OkCupid's* “browse matches” page lets users refine the list of potential romantic partners that they discover through a variety of search parameters including demographic traits, lifestyle traits, and answers to particular match questions.

Source: OkCupid [http://www.okcupid.com, accessed March 2018]

4.4.2.2 Restricted Browse Pages. In an alternative implementation of matching algorithms, discovery of potential romantic partners is restricted only to the users that the matching algorithm determines to be appropriate. Users in such systems are unable to refine or modify their list of discovered potential romantic partners with search fields. The most popular example of this content-based matching algorithm approach is *eHarmony*.

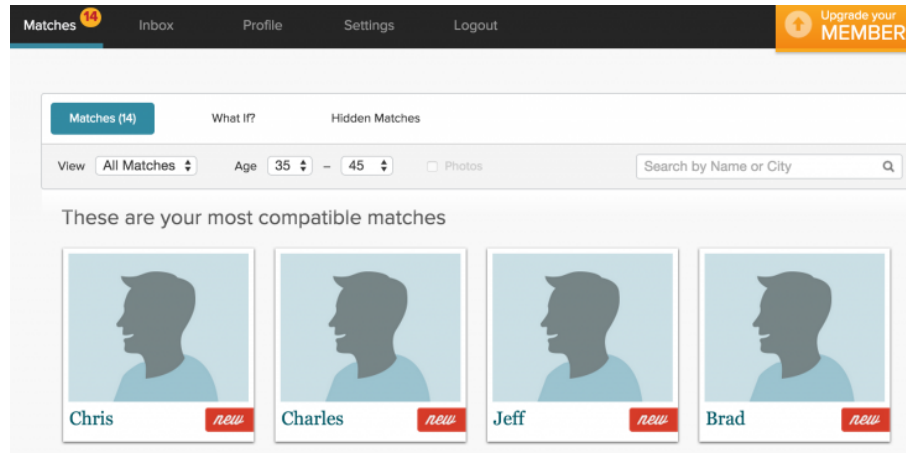


Figure 4.33 *eHarmony* introduces users to a finite number of potential romantic partners each day through the “matches” page as determined by their algorithm. Users are not able to discover potential romantic partners in any other way.

Source: *eHarmony* [<http://www.eharmony.com>, accessed March 2018]

4.4.3 Mutual Connections

Mobile dating apps typically do not have search fields for users to filter potential partners by particular desired traits, nor do they typically have complex matching algorithms based on survey answers to facilitate user discovery. Instead, they facilitate discovery of potential romantic partners through a “browse” interface in which users discover potential partners one-by-one based on relatively simple criteria.

A common criterion for ordering or filtering potential partners on mobile dating app “browse” pages is mutual connections. For example, some mobile dating apps integrate with *Facebook* to extract mutual friends between potential romantic partners. Mobile dating apps like *Hinge*, *Coffee Meets Bagel*, and *Tinder* influence discovery of potential romantic partners by introducing users that have mutual friends on *Facebook*.

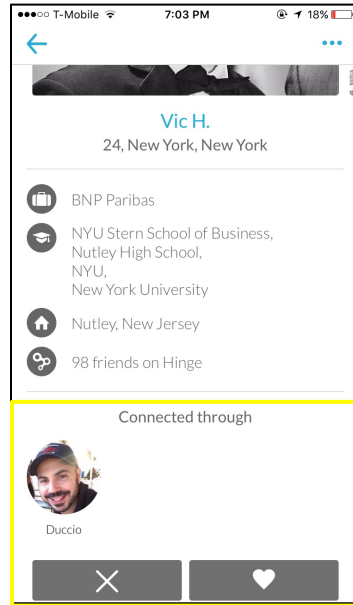


Figure 4.34 In *Hinge*, users discover potential romantic partners in a “browse” interface that introduces them to potential romantic partners based on mutual friends on *Facebook*. They see one profile page at a time and must decide whether or not to “swipe” on the user’s profile before discovering another potential partner.

Source: Hinge [http://www.hinge.co, accessed March 2018]

4.4.4 Location

Location is one of the most important factors that influences discovery of potential romantic partners in online dating systems because users’ relationship goals often necessitate in-person meetings. Online dating systems have utilized location in three different ways when using it to aid in potential romantic partner discovery: absolute location, relative distance, and co-location. Many online dating systems restrict discovery of potential partners to those that are or were in a nearby location. For example, *Happn* enables discovery of only the potential partners who were co-located with the user at a particular time, and *Tinder* lets users specify the maximum relative distance of potential partners that they discover one-by-one on the “browse” page. In some browser-based online dating systems like *OkCupid* and *Plenty of Fish*, discovery of potential romantic

partners is not restricted by location, but users in the same or nearby cities are emphasized on browse/search pages more so than users who live farther away.

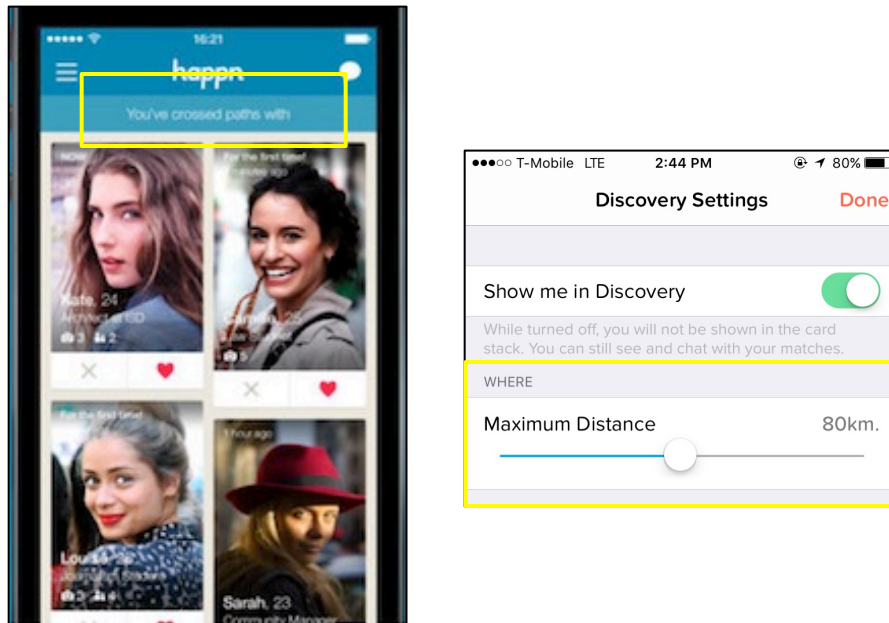


Figure 4.35 In *Happn*, users can only discover potential partners that they have “crossed paths” with in the physical world. In *Tinder* (right), users can specify the maximum relative distance of potential partners that they discover in the app.

Source: *Happn* [<http://www.happn.com>, accessed March 2018] (left), *Tinder* [<http://www.tinder.com>, accessed March 2018] (right)

4.5 Online Dating Systems as Social Matching Systems

Online dating systems are a subset of social matching systems [208], which, in turn, are a subset of recommender systems [184]. Terveen and McDonald defined social matching systems in the following way in 2005: “one could offer a simple definition of social matching systems: they’re recommender systems that happen to recommend people instead of (say) movies or books or documents. [...] Social matching systems recommend people to each other instead of recommending items to people” [208] (p. 403).

If online dating systems are a subset of social matching systems, when are two online dating system users considered a “match”? The notion of a social match is complex because it is two-sided: it includes two people, each with his or her own preferences, desires, and opinions. Additionally, the opinions that two matched users have of each other may change over time. In regards to online dating systems, the notion of a “match” is particularly ambiguous because there are a variety of “milestones” that two potential romantic partners must pass on their way to accomplishing their relationship goal. They must be initially attracted to each other in the online dating system and through the duration of their interaction online. Then they must meet in-person since romantic relationship goals often necessitate in-person meetings, and they must remain attracted through the duration of that meeting. In the case of long-term relationships, there are additional milestones after the initial in-person meeting, such as sexual intercourse, declarations of monogamy, marriage, having children, maintaining and enjoying the relationship, and so on. At which of these stages are two online dating system users considered a match?

Before delving into the various conceptualizations of a match within online dating systems, we must first review the contexts in which a “match” has historically been applied and defined in social contexts.

4.5.1 Conceptualizations of a Match in other Disciplines

Below definitions of a match are reviewed from four different research disciplines: economics, sociology, social psychology, and cultural anthropology.

4.5.1.1 Matching in Economics. “‘Matching’ is the part of economics that focuses on the question of who gets what, particularly when the scarce goods to be allocated are heterogeneous and indivisible” [170] (p. 1). A matching market is a particular context, or labor market, in which this matching takes place. Examples include matching doctors to hospitals [169], matching students to schools (Abdulkadiroglu and Somez, 2003), matching kidney donors to recipients [189], and matching male and female dating partners [109].

There are two distinct types of matching markets: one-sided and two-sided, not unlike those in recommender systems. One-sided matching markets typically consist of people on one side, and products on the other [170]. Objects, by nature, do not have a preference of who they are matched with, so people are the only active participants in these markets and matches are made based on their preferences alone [170]. Two-sided matching markets consist of people, or “agents,” who belong to one of two distinct sets [190]. Both sides of the market have particular preferences, and each agent desires to be matched with an agent from the opposite side [170]. A match in a two-sided matching market “refers to the bilateral nature of exchange in these markets – for example, if I work for some firm, then that firm employs me” [190]. The theoretical foundation for two-sided markets is rooted in the Gale-Shapley algorithm [75], which detailed a way to find “stable” matches between agents from both sides of a market. A “stable match” in economics means no two agents from different matches would prefer each other over their current partners [75].

4.5.1.2 Matching in Sociology. The concept of two-sided matching markets has appealed to the field of sociology as much as economics. Sociology literature has largely adopted the definition of a “stable match” from economics [167], but while economics research is devoted to “designing and evaluating the performance” of matching markets, sociology research focuses on the patterns and trends that dictate agent preferences in matching markets in order to understand why matches become stable, and why they can become unstable [109] (p. 130).

Sociology research points out that stable matches are not permanent, but rather transient because agents in a market can revise their preferences over time [35]. As such, the matching process is realistically comprised of “sequential decisions that do not generally yield stable matching structures” [167]. For example, a once-stable marriage can become unstable if one partner discovers a new, more preferred partner at a later time, or if they discover information about their current partner that makes them undesirable, such as infidelity.

4.5.1.3 Matching in Social Psychology. The concept of matching in social psychology often pertains to the matching hypothesis proposed by Walster and colleagues in 1966 [219], which was previously reviewed in chapter 3. The matching hypothesis predicts that, when making a realistic choice of partner, a person will choose a romantic partner whose overall level of romantic attractiveness matches his or her own.

4.5.1.4 Matching in Cultural Anthropology. Cultural anthropology has gleaned insight into the earliest instances of “matching” or “match making” between humans for marriage. Matchmaking harkens back to the era of arranged marriages in which spouses

had little or no say in who they married, instead relegating this decision to parents of the spouses or a professional matchmaker who paired two potential partners together and received a fee or gift if the match culminated into a marriage [5,97]. Matching—or arranging—marriages has been exhibited in many cultures throughout history. Before the 20th century it was common in Japan for parents to hire professional matchmakers called *nakodo* [5] to find potential partners for their children and introduce them to each other. Marriages were arranged through a custom called *miai* without the consent of either spouse [47]. In Korea matchmakers are still used, especially in rural areas [97]. Korean matchmakers called *jung-me* use social status, earning potential, and family lineage to match prospective partners. Fortune tellers called *mudang* [97] then examine the spiritual aspects of a match to determine a couple's fortune, which weighs heavily on the decision to have them marry. Arranged marriage is also a staple of Egyptian society. As Hashish and Peterson describe:

“The traditional system has always been for the family to play a significant, often dominant, role in determining a child's spouse. When family and other social networks have proven unable to find a suitable spouse for a son or daughter, Egyptian families made use of khatbas, female professional matchmakers who knew practically everybody in the community. Khatbas were paid a small fee for their services, followed by a large present if a successful match was made” [103] (p. 7).

Midway through the 20th century arranged marriages began to wane as younger generations demanded the freedom to marry people of their own choice [231]. These marriages based on freedom of choice are called “love marriages” [16]. The definition of a match for a love marriage is contingent on the two spouse's sentiments alone, but the

criteria on which they select each other as a match varies by culture. In America this decision is based predominantly on emotion, while in other cultures such as Egypt it is based largely on social compatibility (such as similar financial situation and living conditions) [103].

4.5.2 Conceptualizations of a Match in Online Dating Systems

Matches in online dating systems have been conceptualized from three perspectives: 1) matches from the perspective of the system (independent of sentiment from either user), 2) matches determined by the sentiment of one user, and 3) matches determined by the sentiment of both users. Below these three perspectives are described in more detail, and the conceptualization of a match adopted for the remainder of this dissertation is chosen.

4.5.2.1 Matches Independent of User Sentiment. In online dating systems that leverage matching algorithms to recommend users to each other, it is common for all users discovered in restricted browse pages and browse/search pages to be considered “matches,” independent of any user sentiment.

Some of these users may be discovered as the result of search parameters explicitly provided by users on a browse/search page—such as a minimum height or maximum age—meaning the discovered users “match” the search criteria provided. However, the user conducting the search may not be interested in any of the particular users returned in the search results, and users returned in the search results may not be interested in them. Hence the term “match” is used prior to both or either user expressing interest in the particular other.

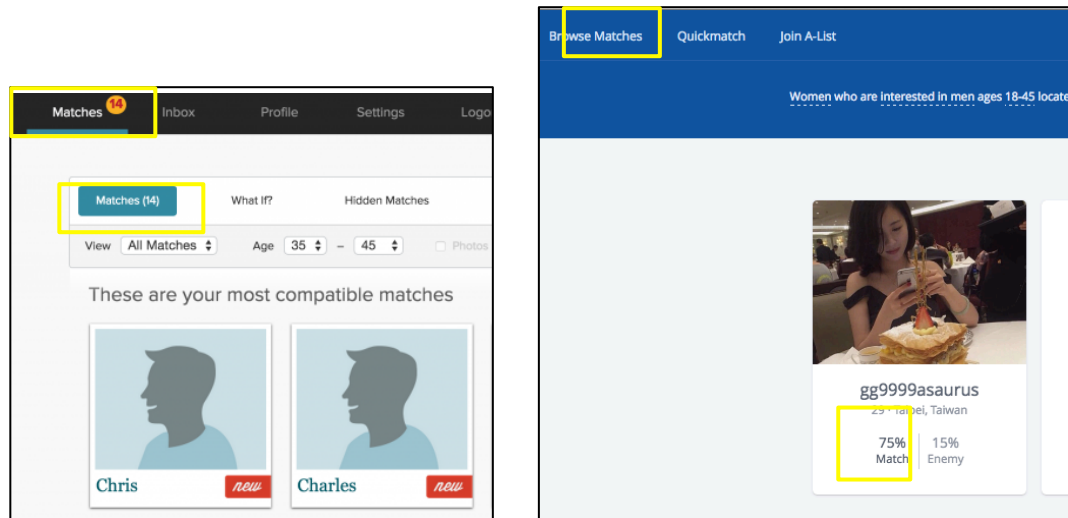


Figure 4.36 In *eHarmony*, users can only discover others recommended to them by the system’s matching algorithm. *eHarmony* refers to any user recommended by their algorithm as a “match.” *OkCupid* (right) refers to any user discovered through the browse/search page as a match, and includes a match percentage next to each user based on their answers to the matching algorithm survey questions.

Source: *eHarmony* [<http://www.eharmony.com>, accessed March 2018] (left), *OkCupid* [<http://www.okcupid.com>, accessed March 2018] (right)

Conceptualizing a match being two particular users without the sentiment of either user is similar to the notion of a “match” in arranged marriages as studied in cultural anthropology. In this sense the system’s matching algorithm serves as matchmaker, with the key differences being that the people involved in a match can disagree with it (i.e., they can choose not to communicate with a user they are matched with) and the system does not monitor if the introduction of two algorithm-matched users culminated into satisfied relationship goals.

4.5.2.2 One-Sided Matches.

In research studying matching algorithms in online dating systems, matches have been defined from the perspective of one person involved, not unlike the one-sided recommendations of products to people in traditional recommender systems. For example, Brozovsky and Petricek [23] tested a variety of

content-based and collaborative filtering-based algorithms in online dating systems, defining success of these algorithms as positive sentiment expressed from only one of the two users involved in the recommendation.

4.5.2.3 Reciprocal Matches. A third conceptualization of a match in online dating systems acknowledges that social matches are inherently two-sided and reciprocal—two users must both express positive sentiment towards each other before they are considered a match. We adopt a reciprocal definition of a match for the remainder of this dissertation because it echoes the two-sided conceptualization of a match historically used in other research disciplines like economics and sociology and aligns with the research objectives of the dissertation—notably the outcomes of in-person meetings, which would not occur if both users involved did not express interest in meeting.

While a reciprocal conceptualization of a match is dependent on the sentiment of both people involved, definitions of what constitutes reciprocity have varied because interest can be reciprocated in a variety of ways and at multiple stages towards achievement of user goals.

For example, Akehurst and colleagues defined reciprocity in an unnamed online dating system as two users reciprocating an “expression of interest,” which was a generic indicator of interest (similar to a “like”) that users could send by clicking a button on the respective user’s profile page [2]. Other conceptualizations of a reciprocal match depend on text-based message exchange. For example, Pizzato and colleagues defined success of RECON, a reciprocal recommender tested on a “major Australian dating website,” as two recommended users sending at least one text-based message to each other [178]. In

another example, Hitsch and colleagues defined a “match” in online dating systems as two users exchanging phone numbers with each other through text-based messaging [109].

Despite these conceptualizations of reciprocity varying, they can all be satisfied within system use. No conceptualizations of reciprocity have been documented that necessitate in-person meetings between users or relationship goals actually being achieved.

For the reciprocal conceptualization of a match adopted in this dissertation, a match is defined as two users indicating interest in each other in an online dating system. An indicator of interest (IOI) can be considered any explicit attempt to communicate directly with another user in the online dating system. An indicator of interest (IOI) can take two forms: 1) a generic indicator of interest such as a “like” or a “swipe” of the user’s profile page, or 2) a personalized indicator of interest such as a text-based message. A match can be considered as established between two users once they have reciprocated an IOI to each other, which can mean reciprocated generic IOIs, reciprocated personalized IOIs, or a combination of a generic IOI from one user and a personalized IOI from the other.

Some online dating systems explicitly adopt the above reciprocal definition of a match through system design. Mobile dating apps such as *Tinder*, *Coffee Meets Bagel*, and *Hinge* explicitly identify a pair of users as a “match” through a modal window and then in the message inbox once IOIs are exchanged. We refer to this system design approach that visually acknowledges a reciprocal match as *explicit reciprocal matching*.

In many mobile dating apps that adopt explicit reciprocal matching, two users must exchange generic IOIs by “swiping” or “liking” each other’s profile page before being able to send personalized text-based messages to each other. Users in these mobile dating apps are often not aware that a potential partner has expressed a generic IOI to them until after they have expressed their own generic IOI to the respective potential partner.

Other online dating systems, particularly many browser-based online dating systems, exemplify *implicit reciprocal matching*. In these systems, reciprocation of IOIs between users is not explicitly acknowledged through system design as an established match. In systems that exemplify implicit reciprocal matching, users are typically made aware of generic and personalized IOIs sent to them before making decisions to send their own IOIs to the respective potential partners. Likewise, users in these systems typically do not need to establish a reciprocal match with a potential partner before being able to send personalized text-based messages to them. For example, a reciprocal match is implicitly established in systems such as *OkCupid*, *Plenty of Fish*, and *match.com* if one user receives a text-based message from another and replies to it with their own message, or if a user receives notification of a generic IOI from another user and then decides to send a text-based message or generic IOI to that user.

4.6 Summary

This chapter introduced online dating systems, including a discussion of who uses online dating systems and a review of online dating system design divided into two sections: system interface components that facilitate evaluation of potential romantic partners and

self-presentation to potential romantic partners, and system interface components that facilitate the discovery of potential romantic partners. The chapter concluded by framing online dating systems as a subset of social matching systems and reviewing conceptualizations of a match in online dating systems: matches independent of user sentiment, one-sided matches, and reciprocal matches. A reciprocal conceptualization of a match is adopted for the remainder of this dissertation because it acknowledges that social matches are inherently two-sided, which aligns with the research objectives of this dissertation—notably the outcomes of in-person meetings, which would not occur if both users involved did not express interest in meeting. The next chapter explores the process of potential romantic partner evaluation in online dating systems.

CHAPTER 5

EVALUATION OF POTENTIAL ROMANTIC PARTNERS THROUGH THE USE OF ONLINE DATING SYSTEMS

5.1 Introduction

The previous chapter reviewed online dating systems as a new and increasingly popular environment for the pursuit of romantic partners. The designs of these systems yield a process of potential romantic partner evaluation that stands to differ profoundly from how people evaluate potential romantic partners in hypothetical and face-to-face settings, which served as the focal settings of most of the romantic attraction research reviewed in chapters 2 and 3. This chapter presents the online dater evaluation process, which is a model that describes the process of discovering and evaluating potential romantic partners in online dating systems for the purpose of in-person meeting decisions (“should I meet this person?”). The chapter also presents four possible outcomes of online dater evaluation decisions, positing that online dating system users engage in online dater evaluation to predict which potential partners are worth the costs of in-person meetings, such as time, money, and safety.

The chapter begins by clarifying a scope of study for the online dater evaluation process. The rest of the chapter then delves into each stage of the online dater evaluation process and references prior research that can provide insight into how users evaluate potential partners at each stage.

5.2 Defining Online Dater Evaluation

5.2.1 Users

Online dating system users often desire in-person meetings with other users because they have relationship goals that require in-person interaction, whether those goals entail long-term romantic relationships like marriage or short-term romantic relationships such as a casual sexual encounters [15,55,96,214]. The process of potential romantic partner evaluation in online dating systems as discussed in this chapter pertains to users with romantic relationship goals that require in-person meetings.

As discussed in chapters 1 and 2, this dissertation focuses on romantic attraction and relationship goals that necessitate this type of attraction. So while online dating system users may be used by people with non-romantic goals—such as platonic friendship or goals that do not necessitate in-person meetings, such as ego gratification or general desires to socialize online—these goals are not addressed in this dissertation because they are outside the scope of the research objectives.

5.2.2 The Research Scope of Online Dater Evaluation

In this dissertation the phrase “online dater evaluation process” will be used to refer to the process of an online dating system user evaluating a potential romantic partner discovered in the system as a candidate for an in-person meeting. The process begins at the point of discovering a potential partner in an online dating system and ends at the first in-person meeting (if evaluation of the potential partner were to progress that far), which serves as an opportunity for users to validate the perceived accuracy of their evaluation of a potential partner. In this sense, the initial in-person meeting serves as a ground truth for

evaluation of a potential partner conducted through mediated modalities (e.g., through the online dating system and other mediated means such as phone calls).

The decision to meet in-person a potential romantic partner from an online dating system does not necessarily reflect a desire to initiate a romantic relationship with that particular user at that point in time. It can rather be framed as another step in potential romantic partner evaluation. However, since the scope of online dater evaluation as depicted in this dissertation is on evaluation conducted through online dating systems and other computer-mediated technologies that online dating system users may adopt, evaluation through subsequent in-person meetings after the 1st will not be focused on.

5.2.3 The Interconnection between Evaluation and Self-Presentation

Evaluation of potential romantic partners, whether in online dating systems or any other context, is invariably influenced by impression management; or deliberate self-presentation attempts by people to influence or engineer the impressions others form of them [84]. Impression management attempts stand to be particularly influential to evaluation of potential romantic partners in online dating systems because much of the information available in these systems is self-provided by the user to whom it pertains, meaning all users invariably assume the roles of both self-presenter and evaluator.

While the focus of this chapter is online dater evaluation, research pertaining to self-presentation in online dating systems will also be discussed to demonstrate how self-presentation affects evaluation of potential romantic partners in online dating systems.

5.3 The Online Dater Evaluation Process

As described in Section 5.2.2, the term *online dater evaluation process* refers to the process of deciding whether to meet in-person with a potential romantic partner discovered in an online dating system. The online dater evaluation process can be divided into three main stages: pre-match evaluation, post-match evaluation, and in-person validation of evaluation (see Figure 5.1). In this section we define the three stages of the online dater evaluation process and describe the potential outcomes of decisions to progress or end the online dater evaluation process for a respective potential romantic partner.

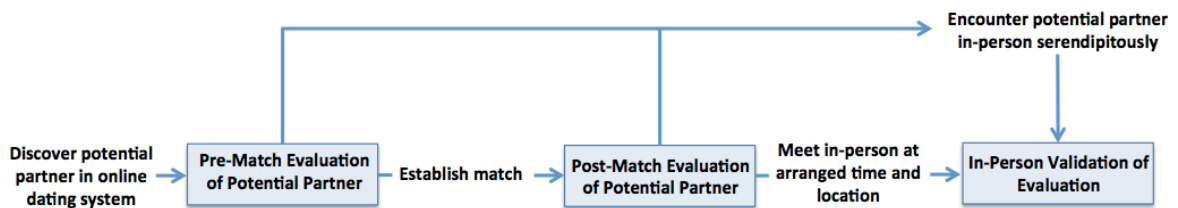


Figure 5.1 The online dater evaluation process from the perspective of one user evaluating another. Progression through the online dater evaluation process can end or stagnate during the pre-match stage or post-match stage, although the variety of circumstances that can lead to stagnation or permanent discontinuation of the online dater evaluation process between two users are not depicted in this figure.

5.3.1 Pre-Match Evaluation

Pre-match evaluation encapsulates the online dater evaluation process from the point of discovering a potential partner in an online dating system up to establishment of a match with the respective potential partner. As explained in Section 4.5.2.3, a match in this dissertation is defined as two users indicating interest in each other in an online dating system. An indicator of interest (IOI) can be considered any explicit attempt to communicate directly with another user in the online dating system. An indicator of interest (IOI) can take two forms: 1) a generic indicator of interest such as a “like” or a

“swipe” of the user’s profile page, or 2) a personalized indicator of interest such as a text-based message. A match can be considered as established between two users once they have reciprocated an IOI to each other, which can mean reciprocated generic IOIs, reciprocated personalized IOIs, or a combination of a generic IOI from one user and a personalized IOI from the other.

Barring serendipitous in-person encounters, online dater evaluation will not escalate past the pre-match stage if the evaluating user and the user being evaluated do not match. Within online dating systems, pre-match evaluation can be influenced by system interface components related to user discovery, profile page content, and any IOIs (e.g., generic “likes” or personalized messages) received from users before deciding to express one’s own IOIs. Pre-match evaluation can also encapsulate attempts to collect information about a potential romantic partner from outside of the online dating system, such as *Google* searches, the potential partner’s *Facebook* page, conversations with mutual acquaintances of the potential partner, and so on. Circumstances external to online dating system use may also influence pre-match evaluation.

5.3.2 Post-Match Evaluation

If two online dating system users establish a match (i.e., reciprocate IOIs, as described in Chapter 4), they progress to the post-match evaluation stage. Post-match evaluation encapsulates the evaluation of a matched user from the point of IOI reciprocation up to, but not including, the first in-person meeting with a matched user. Within online dating systems, post-match evaluation can be influenced by profile page content of matched users, information exchanged through generic and personalized interaction interfaces in the online dating system with matched users, and discovery of new potential partners in

the online dating system. Post-match evaluation can also encapsulate mediated communication with a matched user outside of the online dating system—such as through phone calls, SMS, or *Skype* calls—as well as information collected about a matched user from outside of the online dating system (see examples in the previous paragraph). Circumstances external to online dating system use may also influence post-match evaluation. Barring serendipitous in-person encounters, online dater evaluation will not progress past the post-match stage if the matched users do not meet in-person.

5.3.3 In-Person Validation of Evaluation

The final stage in the online dater evaluation process entails the initial in-person meeting with a potential romantic partner, which affords the opportunity to validate the online impression formed of that potential partner.

5.4 Outcomes of Online Dater Evaluation Decisions

Evaluation of potential partners in the pre-match and post-match stages of the online dater evaluation process can lead to two decisions: 1) the decision to meet the potential partner in-person, or 2) the decision to discontinue evaluation of the potential partner. These decisions can result in four possible outcomes in terms of online dater evaluation.

Table 5.1 Potential Online Dater Evaluation Outcomes

	In-person meeting would be successful	In-person meeting would be unsuccessful
Decide to meet potential partner in-person	True-Positive	False-Positive
Decide not to meet potential partner in-person	False-Negative	True-Negative

The four online dater evaluation outcomes are differentiated by in-person meeting success. An in-person meeting, for the purposes of this research, is considered successful if one desires a second in-person meeting with a potential partner (i.e., the potential partner remains a candidate for one’s relationship goal), or if one’s relationship goal with a potential partner is satisfied during the first meeting (e.g., a casual sexual encounter). This definition for first in-person meeting success intends to be germane to both long-term relationship goals, which would require a second meeting, and short-term relationship goals, which may not require a second meeting such as a casual sexual encounter.

Due to the costs of in-person meetings—such as time, money, and safety—it can be posited that online dating system users engage in online dater evaluation to reduce the number of false positive decisions as much as possible. We posit in this dissertation that users’ chances for true-positive in-person meeting decisions are maximized when their online impressions of a potential partner closely mimic evaluations of those traits in-person.

In the following sections, each stage of the online dater evaluation process is presented in more detail, and prior research pertaining to how online dating system design influences users' evaluations in each stage is discussed.

5.5 Pre-Match Evaluation Literature Review

Pre-match evaluation encapsulates the online dater evaluation process from the point of discovering a potential partner in an online dating system up to reciprocation of IOIs with the respective potential partner (i.e., establishment of a match). Pre-match evaluation can be influenced by system interface components related to user discovery, content of potential partners' profile pages, and any IOIs (e.g., generic "likes" or personalized messages) received from users before deciding to express one's own IOIs. These interface components are reviewed below as they pertain to online dater evaluation.

5.5.1 Interface Components Related to Discovery of Potential Partners

5.5.1.1 Facilitating Discovery with Matching Algorithm Recommendations.

Matching algorithms, as reviewed in Chapter 4, essentially perform some evaluation of potential romantic partners on behalf of users by recommending potential partners to each other that the algorithm considers statistically compatible. Do matching algorithms make "manual" evaluation of potential romantic partners a superfluous endeavor for users in online dating systems? Finkel and colleagues argue no, citing a lack of "compelling evidence" that validates claims made by online dating system companies about mutual romantic attraction between users recommended through their algorithms [58] (p. 26). They claim this lack of evidence will persist because matching algorithms cannot take

into account two vital influences on romantic attraction—interaction (which cannot possibly precede discovery of a potential partner), external circumstances in users’ lives (e.g., a shift of relationship goal or recent life experiences).

5.5.1.2 Facilitating Discovery with User-Defined Preferences. In many online dating systems that feature matching algorithms, recommended potential partners are presented to users on a “browse and search” page (see Section 4.4.2.1.1). These pages provide users with an array of search parameters to modify the list of recommended potential partners based on particular combinations of preferences regarding dedicated trait fields in profile pages (e.g., “a man over 6’0”, between 25 and 32 years old, that is white, and does not smoke”). Decisions of which potential partners to select for further evaluation on “browse and search” pages are largely predicated on ideal partner preferences; a phenomenon Heino and colleagues call “relationshopping” [107]. As they describe:

“[...] the ability to filter through thousands of profiles [...] encouraged a shopping mentality, in which participants searched for the perfect match based on discrete characteristics and reduced potential partners to the sum of their parts. Decision making based on these qualities was quite different from offline dating situations in which individuals often get a more holistic impression of the individual, usually taking into account unquantifiable aspects of personality (such as energy level) and interaction (such as chemistry)” [107] (p. 437).

In this regard, potential partners that may otherwise be evaluated favorably in later stages of online dater evaluation may go undiscovered or may be disqualified during

the pre-match stage if their “discrete characteristics” do not resonate with the evaluating user’s conscious preferences.

5.5.1.3 Facilitating Discovery of Multiple Potential Partners.

In most online dating systems users can discover multiple potential romantic partners at a time, typically through a “search and browse” page or a swiping mechanism (see section 4.4.3 and 4.4.4 for examples). Discovery of multiple potential partners at a time induces an assessment mindset (reviewed in chapter 2) in which choices are evaluated against each other (e.g., “is this potential partner more or less attractive than ones that I also just discovered?”) rather than solely in regards to one’s goal (e.g., “is this potential partner romantically attractive?”). Finkel and colleagues [58] consider this mindset detrimental to online dater evaluation, drawing on romantic compatibility research which demonstrated that relationship partners with assessment mindsets are more critical of their partners and more pessimistic about their relationships [74,132]. Under this line of thinking, an abundance of discovered potential partners may increase online dating system users’ tendencies to disqualify a potential partner in the pre-match stage even if they are considered attractive because another, potentially more attractive user “is a mere mouse-click away” [58] (p. 29).

Confronting people with many choices of potential romantic partners can also induce choice overload [116], which spurs them to reject all available choices, or to evaluate choices based on traits that are easiest or fastest to evaluate [89]. Research has demonstrated that as the choice of online dating profiles increases, users increasingly adopt a faster evaluation strategy that leverages the traits easiest to evaluate on the profile page like age and height [142], they deviate from their ideal partner preferences

[36,233,234], and they misremember which traits were listed in particular profile pages [141].

5.5.1.4 Facilitating Discovery by Proximity. As discussed in Chapter 2, physical proximity exerts a positive influence on romantic attraction [198]. Physical proximity may exert a powerful influence in online dating systems as well, particularly those systems that leverage increasingly granular depictions of relative distance to facilitate discovery of potential romantic partners.

For example, the granular relative distance that facilitates user discovery in *Grindr* (e.g., “100 feet away”) emphasizes the potential immediacy of an in-person encounter, spurring users to consolidate much of the online dater evaluation process and meet potential partners in-person within minutes of discovering them in the mobile dating app [148]. Such immediacy of in-person meetings may not be as common amongst heterosexual online daters, however, because female users have expressed safety concerns over meeting other users in-person [81].

5.5.2 Indicators of Interest

In some online dating systems users can be notified of generic and personalized IOIs sent to them by potential partners before making decisions to send their own IOI. This awareness of IOIs prior to reciprocation enables IOIs to influence online dater evaluation at the pre-match stage. For example, in an interview study of online dating system users, one female user described how she would only read a man’s profile page if his initial text-based message was humorous [37].

Receiving too many IOIs during the pre-match stage can induce choice overload. As Finkel and colleagues describe, “the more desirable partners, especially the most desirable women, are likely to find the process of sifting through so many first-contact e-mails aversive, perhaps causing them to disengage from the process altogether” [58] (p. 27). Fiore and colleagues [63] supported this assertion, showing that women initiate contact and reply to text-based message IOIs at a lower rate than men. They leveraged evolutionary theory to explain this finding, which posits that women will be more selective than men when choosing romantic partners because of the costs involved with child rearing [30]. Kreager and colleagues [129] also found that women initiate contact with generic or personalized IOIs less often than men, but they are more than twice as likely than men to have an IOI reciprocated when they are the one to initiate contact.

5.5.3 Profile Pages

While the designs of profile pages may vary from system to system, they are a universal element of all online dating systems. As such, profile pages represent an integral source of information about potential romantic partners in the pre-match stage of online dater evaluation. While profile pages can also be leveraged during the post-match stage of the online dater evaluation process, research concerning evaluation of profile pages will be reviewed here because in many cases users must access the profile page of a potential partner before matching with them.

5.5.3.1 Profile Pictures. The attractiveness of profile pictures has been found to be the strongest predictor of the attractiveness of whole profile pages for both male and female online daters [65]. This is to be expected because profile pictures convey physical appearance, which is a paramount influence on romantic attraction [61].

Research has found physical attractiveness from profile pictures to be a “vertical attribute” [110] (p. 2), meaning both male and female users receive more IOIs as their physical attractiveness increases [129,227]. This finding deviates from theories historically applied to explain the role of physical appearance to romantic attraction. For example, Whitty [227] pointed out that this finding is not in line with evolutionary theory, which posits that men should value physical attractiveness more than women [26]. Kreager and colleagues [129] pointed out that this finding also differs from research regarding the matching hypothesis (see Chapter 3) and homophily (see Chapter 2), which posit that people choose romantic partners with similar traits and levels of physical attractiveness. Kreager and colleagues go on to suggest that, due to reduced fear of rejection in online dating systems, decisions to express IOIs “may reflect ideal rather than realistic preferences, and the original matching hypothesis may apply only to the latter” [129] (p. 405).

Online daters seem to recognize the importance that physical attractiveness has on the way potential romantic partners evaluate them: research has found deception of physical appearance in profile pictures to be common [24,227]. Hancock and Toma [102] found that online daters typically rate their own pictures as accurate, yet independent judges considered one-third to be inaccurate. In another study, Toma and Hancock [213] found that the less physically attractive a user is in the physical world, the more likely

they are to deceptively present in their profile pictures. Masden and Edwards [160] recounted how users try to detect deception in profile pictures by using *Google* Reverse Image Search. Deceptive profile pictures may have less effect on evaluation of female users than male users. One study demonstrated that attractive female profile pictures still lead men to develop positive evaluations even when they are told the pictures are deceptive [9].

Through an experiment assessing how attractiveness of profile pages is determined, Fiore and colleagues discovered that profile pictures may signal personality as well as physical attractiveness [65]. They found that photos of men considered attractive were also considered to appear genuine and trustworthy, extraverted, and feminine. Photos of women considered attractive were considered to appear more feminine, less masculine, higher in self-esteem, and lower in self-centeredness.

5.5.3.2 Dedicated Trait Fields. When evaluating dedicated trait fields in profile pages, income has been found to be a vertical attribute—both male and female users receive more messages as their self-reported income increases [110,227]. Age has also been found to be a vertical attribute of women—male users have demonstrated a tendency to message younger women [192], which is indicative of their biological preference for reproductive value according to evolutionary theory [26].

In line with the concept of homophily (see chapter 2), studies have shown that online daters generally prefer to message users with similar answers in dedicated trait fields for ethnicity, marital status, age, education, height, political orientation, and religion [63,64,195]. Users also prefer to message others with similar answers in dedicated fields for lifestyle traits like smoking habits and the relationship-goal related

trait of desire for children [64]. These trait fields that users desire similar answers for are sometimes considered horizontal attributes [110].

Like profile pictures, research has found that users commonly deceive in their answers to dedicated trait fields—particularly age, height, and weight [24,55,101]. In line with Buss’ gender differences posited under evolutionary theory [26,30], male online daters were found to be more likely to misrepresent personal assets and relationship goals in their profile pages than women, and women were more likely to misrepresent weight in their profile pages than men [100]. Toma and Hancock [213] found that the less physically attractive a user is in the physical world, the more likely they are to deceptively present their height, weight, and age in respective dedicated fields. Masden and Edwards [160] also collected information about users lying about the location listed in their profile page to expand the pool of potential romantic partners that they discover.

Collectively, tendencies of users to deceive in dedicated trait fields can hinder the reliability of signals pertaining to demographic, lifestyle, and relationship goal-related traits.

5.5.3.3 Free-text Fields. Fiore and colleagues [65] found free-text content to be a significant predictor of women’s whole profile attractiveness and a slightly significant predictor of men’s whole profile attractiveness.

Some research into free-text fields emphasized the influence that writing skill can have on online dater evaluation. For example, Ellison and colleagues [55] found that users interpret misspellings in free-text fields to be signals of poor education and intelligence. In another study of an online dating system that did not facilitate profile

pictures, skilled writers (as determined by judges) received more IOIs than less skilled writers, presumably because they self-presented their physical appearance more attractively through text than less skilled writers [195].

Free-text content may also be used to detect subtle signals of potential partners' desires for casual sex [14,15,55].

Masden and Edwards reported how *Tinder* and *OkCupid* users often found free-text fields in profile pages to be “tired, clichéd, or uninformative” for evaluation purposes [160] (p. 541). As one of their interview participants described: “*People are not very good at describing themselves. Everyone's always fun-loving, loves to laugh, loves to travel, um, loves to hang out with friends, loves to watch Netflix or go out to the bar, [...] I wish there was some better way to get descriptions of people*” (p. 541). Data from Alterovitz and Mendelsohn [3] echoes this limitation of free-text fields as a valuable resource for online dater evaluation, indicating that these fields are typically populated with users' ideal partner preferences along with demographic traits that users think will attract potential partners, such as income.

5.6 Post-Match Evaluation Literature Review

The post-match stage encapsulates the evaluation of a matched user from the point of IOI reciprocation up to, but not including, the first in-person meeting with a matched user. Post-match evaluation can be influenced by interaction with matched users inside and outside of the online dating system. Post-match evaluation can also be influenced by the profile page content of matched users, information collected about a matched user from

outside of the online dating system, and the choice of alternative potential partners in the online dating system. These influences are discussed below.

5.6.1 Computer-Mediated Interaction

According to Gibbs and colleagues [81], the most common uncertainty reduction strategy reported by online dating system users is the interactive strategy, which encompassed text-based messaging in online dating systems as well as phone calls with other users.

Some research has examined the factors that lead to continued text-based messaging between users after a match is established. Fiore and colleagues analyzed a dataset from a commercial online dating system, revealing that there is “no such as thing as too quick [to] reply”—if one user sends an initial message to another, the chances of that user sending another message after the second user responds and thus establishes a match goes down the longer it takes for that second user to reciprocate [63] (p. 9). Kreager and colleagues analyzed a dataset from a commercial online dating system to show that after a match is established, “the attractiveness gap narrows with increasing message exchanges,” meaning users are most likely to sustain text-based messaging interaction with potential partners of similar physical attractiveness after matching [129] (p. 406). This suggests that the phenomenon of homophily becomes increasingly prevalent in the post-match stage of online dater evaluation.

Other research has indicated that the duration of online dater evaluation in the post-match stage has implications on the perceived accuracy of online impressions once validated during the first in-person meeting. A 2015 study by Ramirez and colleagues showed that the longer online daters engage in text-based messaging before meeting a

potential partner in-person, the more likely they are to consider their online evaluations of the potential partner inaccurate in-person [179]. As they write, “while a brief period of online interaction can be beneficial, daters may reach a tipping point upon which further interaction begins to produce negative, rather than continued positive, effects on an initial in-person meeting” (p. 110). They considered this tipping point to be 17-23 days of text-based messaging, after which online daters are predisposed to experiencing expectancy violations.

Work from Frost and colleagues [72] supports the assertion that longer text-based messaging conversations are not always better. They published survey data showing that users spend seven times as many hours reading profile pages and engaging in text-based messaging conversations than they do going on in-person dates, and that users in their study reported being very dissatisfied with the online dating process as well as their in-person dates. They interpreted these findings to indicate a scarcity of “experiential attributes” in the online dater evaluation process, which they defined as subjective traits that cannot be easily searched for or filtered in online dating systems.. In their words, “our account suggests that [...] the mismatch between the kinds of information people wish to know and the information available online [...] drives dissatisfaction with online dating. [...] the lack of experiential information available may lead to greater disappointment” [72] (p. 54).

5.6.2 Profile Pages

While profile pages may play a more central role in online dater evaluation at the pre-match stage, they can also be important in the post-match stage. Gibbs and colleagues [81] discovered that users cross-reference information gathered during text-based messaging with information in the user's profile page.

5.6.3 Information Found Outside of the Online Dating System

Gibbs and colleagues [81] also discovered that online daters use information collected through text-based messaging, such as a potential partner's real name or e-mail address, to perform *Google* searches on the potential partner.

5.6.4 Choice of Potential Romantic Partners in Online Dating Systems

Choice of, and physical proximity to, potential romantic partners were previously discussed as influences on online dater evaluation during the pre-match stage. Yet these factors can also have an effect during the post-match stage because online dating system users continually discover new potential romantic partners in the system. For example, Couch and Liamputtong [37] reported how users would sometimes cease text-based messaging conversations with other potential romantic partners to focus on a singular potential partner that they were most attracted to.

5.7 In-Person Evaluation Literature Review

The final stage in the online dating evaluation process is in-person evaluation, which affords users the opportunity to validate evaluations of potential partners formed through mediated means (i.e., through the online dating system and other mediated

communication tools like phone calls). In this section prior literature regarding this stage is organized around: 1) ways in which an in-person meeting can occur between two online dating system users, 2) the benefits and costs of progressing to the in-person evaluation stage with a potential romantic partner, and 3) current knowledge about outcomes of online dater evaluation decisions.

5.7.1 Ways of Progressing to the In-Person Evaluation Stage

Online dater evaluation can progress to the in-person evaluation stage in two ways: 1) by meeting another user serendipitously in the physical world, or 2) by arranging an in-person meeting at a designated time and place with a matched user. Serendipitous in-person meetings are perhaps most likely to occur between users of mobile dating apps that utilize granular relative distance. For example, *Grindr* research has recounted instances in which users discovered potential partners in the app that were listed as only a few feet away and then were able to spot them immediately in the physical world simply by looking around [148]. Since such meetings are likely to occur soon after discovery of the potential partner, users may have conducted minimal evaluation before the serendipitous in-person meeting, or may not have even discovered the respective potential partner at all prior to the in-person meeting (in which case the other user would have discovered them in the online dating system and explained this discovery to them).

Arranged in-person meetings, on the other hand, only occur if two matched users mutually decide to meet in-person. These decisions are based on evaluations of each other as potential romantic partners and, in terms of social exchange theory, are the product of cost-benefit analyses that resulted in each user determining the expected or perceived benefits of meeting the other in-person to outweigh the expected or perceived

costs. Below, some of the benefits and costs of progressing to the in-person evaluation stage with a matched online dating system user as elucidated in prior work are discussed.

5.7.2 Benefits of Progressing to the In-Person Evaluation Stage

“Most daters would be unwilling to engage in a committed romantic relationship without having met their partner FtF [face-to-face]” [179]; also see [228]. The most obvious benefit of meeting a potential partner in-person is putting oneself a step closer to forming a romantic relationship in the physical world, whether that be a long-term relationship or a short-term casual sexual encounter. Yet despite in-person meetings being a requisite step towards romantic relationship initiation, users recognize the initial in-person meeting as an opportunity to continue evaluation of a potential partner [227]. The initial in-person meeting enables users to validate the evaluations they form of potential romantic partners online [179], and settle any concerns of deception regarding physical appearance from profile pictures and other traits from dedicated fields in profile pages.

While research has shown that users actively search for potential partners in online dating systems that align with their ideal preferences [107], they value in-person meetings because of the opportunity to evaluate a potential partner beyond the abstract trait conceptualizations that drive their ideal preferences. As one online dating system user described an in-person meeting: “The whole warm complex animal gestalt of her was unlike anything I could’ve gleaned from e-mails or jpegs. The difficult love in her voice when she talked about her father contained a compressed terabyte of information” [130] (para. 16).

5.7.3 Costs of Progressing to the In-Person Evaluation Stage

Despite the benefits of in-person meetings for online dater evaluation, there are several costs involved with these meetings that make online daters unwilling or unable to meet in-person with potential romantic partners discovered in an online dating system.

One such cost is potential threats to safety. Some research has reported that safety is a paramount concern for female online daters when meeting male users in-person [37,81], and they arrange in-person meetings in public places to try to assuage this concern.

Frost and colleagues [72] also emphasized that time is a notable cost of in-person meetings. A user needs to spend time getting dressed for the in-person meeting, they need to spend time traveling to the in-person meeting location, and they need to spend a minimum amount of time on the actual date. Related to this, in-person meetings can also be financially costly—investments in a new wardrobe, travel costs, and purchases during the in-person meeting such as food and drinks can add up rapidly.

5.7.4 Outcomes of In-Person Meeting Decisions

Aside from Ramirez and colleagues' [179] survey study concerning modality switching with online dating—which reported primarily on how length of messaging conversations positively predicts predicted outcome value for a potential partner after meeting them in-person—there is also a lack of insight into the outcomes of users' decisions to meet in-person with or discontinue evaluation of a potential romantic partner.

5.8 Summary

This chapter presented the online dater evaluation process, a model that describes how online dating system users decide whether to meet a potential romantic partner in-person. The model divides this process into three stages: the pre-match stage, the post-match stage, and the in-person meeting stage. The chapter also presented a table of four possible outcomes of online dater evaluation decisions, positing that users engage in online dater evaluation to maximize the chances of a first meeting culminating in a second meeting or, otherwise, the achievement of one's relationship goal. The chapter concluded by reviewing prior research pertaining to each stage of the online dater evaluation process. The next chapter discusses gaps in knowledge and theorized user struggles through the online dater evaluation process.

CHAPTER 6

GAPS IN KNOWLEDGE AND THEORIZED USER STRUGGLES WITH THE POST-MATCH STAGE OF THE ONLINE DATER EVALUATION PROCESS

6.1 Introduction

The previous chapter presented the online dater evaluation process and reviewed prior research into each stage of this process. A bulk of prior research focused on the pre-match stage, particularly evaluation of traits conducive to deliberate expression like physical appearance in profile pictures and demographic traits in dedicated trait fields.

There remain conspicuous gaps in knowledge regarding the post-match stage of the online dater evaluation process in which users typically inform their evaluations of potential romantic partners by interacting with them using text-based messaging interfaces. Additionally, the outcomes of in-person meeting decisions are largely unknown.

These gaps in knowledge are considerable because—as detailed in Chapters 2 and 3—interaction has historically been integral to evaluation of potential romantic partners. According to behavioral theory, for example, decisions to continue pursuing or maintaining a romantic relationship with a respective partner are the result of an accumulation of enjoyable or “rewarding” interactions [20,90–92,123]. It is thus important to understand how users interact through messaging interfaces in online dating systems, how those messaging interactions inform in-person meeting decisions, and how interactions through messaging interfaces compare to those in subsequent in-person meetings. Leveraging theories germane to romantic attraction, this chapter discusses why

messaging interfaces in today's online dating systems may theoretically be a detriment to online dater evaluation decisions.

6.2 Theorized Struggles with Evaluation through Messaging Interactions

The most common—and often only—interface component that allows for personalized interaction in online dating systems is open text-based messaging (meaning users are given no instructions over what to talk about with each other). While work studying text-based messaging in online dating systems as it pertains to in-person meeting outcomes is relatively uncommon, the studies that do exist indicate that users are often dissatisfied with the outcomes of their face-to-face dates after having messaging interactions [72][179]. These findings would suggest that interactions stemming from messaging interfaces in online dating systems are poor predictors of subsequent face-to-face interactions. This poses significant problems for online dater evaluation decisions because, according to behavioral theory, sustained evaluation of a potential romantic partner is the product of enjoyable or “rewarding” interactions with the partner [123]. The premise of behavioral theory implies that people expect prior/current interactions and future interactions with a potential romantic partner to be similarly rewarding. If enjoyment of messaging interactions within online dating systems is not similar to enjoyment of subsequent face-to-face interaction on dates, then online daters are predisposed to making unsuccessful in-person meeting decisions.

The early findings relating messaging interactions with face-to-face date outcomes [72,179] are also ominous when framed according to attribution theory as well. According to attribution theory, messaging interactions should be beneficial to in-person

meeting decisions because interaction is supposed to support attraction-relevant trait signaling. Thus the longer users engage in messaging interactions, the more signals they should receive of attraction-relevant traits, which should better inform their desire for future interactions. Yet most of the work regarding attribution theory (and behavioral theory) pertains to asynchronous, face-to-face (or “*live*”) interaction. As Reis and colleagues explain, “What makes live interaction special? [...] Several features stand out: [...] interpreting and responding in real-time to each other’s behavior and verbalizations, [and] forming trait inferences from the other’s statements and behaviors” [182] (p. 576).

There are a couple reasons why text-based messaging interactions in online dating systems would theoretically fail to produce trait signals that are confirmed during subsequent face-to-face interactions, and why enjoyment of messaging interactions would differ from enjoyment of subsequent face-to-face interactions. One, the asynchronous nature of text-based messaging interactions may spur users to (over-)deliberate how they respond to and interpret messages, instigating the hyperpersonal effect [221]. Furthermore, given the impression management motives that have been established in the pre-match stage of online dater evaluation, users may over-think or fabricate their message content and choose conversation topics that they think will maintain or increase a positive impression. Messaging decisions forged from this impression management mindset would likely yield messaging behavior that is not reflective of how users would typically act and interact in a synchronous, in-person environment where they would not have the time or resources to over-deliberate and strategize their dialogue and behavior.

6.3 Summary

Prior research into the online dater evaluation process has disproportionately focused on the pre-match stage, and user profile pages in particular. Despite the historical importance of interaction to evaluation of potential romantic partners, there is limited knowledge of how online daters leverage interactions through messaging interfaces in the post-match stage of online dater evaluation to inform their in-person meeting decisions. This chapter theorized why text-based messaging interfaces in online dating systems may impede users' abilities to make well-informed in-person meeting decisions. The next chapter proposes a research plan to explore gaps in knowledge regarding the online dater evaluation process and to understand how online dating system designs could better support potential romantic partner evaluation.

CHAPTER 7

RESEARCH PLAN

7.1 Introduction

According to behavioral theory, enjoyment of interaction is a central determinant of decisions to continue evaluation of potential romantic partners. Yet prior research regarding the online dater evaluation process has given little focus to interfaces in online dating systems that support interaction between users (i.e., text-based messaging interfaces). The previous chapter explored why messaging interfaces in online dating systems may theoretically be detrimental to online dater evaluation decisions. For instance, the asynchronous nature of text-based messaging interaction in online dating systems may spur users to over-deliberate how they interpret messages, leading to the hyperpersonal effect [221]. Given the impression management motives that have been established in research regarding the pre-match stage, users may also over-think or fabricate their message content and choose conversation topics primarily to maintain or increase a positive impression. Messaging decisions forged from this impression management mindset would likely yield messaging interaction behavior that is not reflective of how users would typically act and interact in a synchronous, in-person environment where they would not have the time or resources to over-deliberate and strategize their dialogue and behavior. For these reasons, enjoyment of messaging interactions stands to differ from enjoyment of subsequent interactions during initial in-person meetings.

It is important to note that the detrimental effects of messaging interface-use to online dater evaluation decisions are largely theorized rather than borne out of empirical evidence. There is little empirical knowledge concerning how online dating system users adopt messaging interfaces in conjunction with profile pages to evaluate potential romantic partners and make in-person meeting decisions. Without this knowledge, we would not know if the theorized detriments to online dater evaluation actually persist, and there would be no baseline for which to compare new system interface components for online dater evaluation.

The empirical research plan for this dissertation is designed to deliver insight into two research areas. One is to understand how online dating system users leverage messaging interfaces in conjunction with profile pages to evaluate potential romantic partners online, how messaging interactions factor into in-person meeting decisions, and how enjoyment of messaging interaction compares to enjoyment of interaction during initial in-person meetings. The other research area involves finding ways to improve interfaces for interaction in online dating systems so that users can make better-informed in-person meeting decisions. In particular, there are four research questions stemming from these research areas that are to be explored. In this chapter we present a research plan to explore these questions.

RQ1. In-person meeting decisions and interaction: How do users make decisions to meet potential partners in-person or disqualify them from further evaluation? How do interactions through messaging interfaces inform these decisions?

RQ2. Enjoyment of interaction: According to behavioral theory, sustained evaluation of a potential romantic partner is the product of enjoyable or “rewarding”

interactions with the partner. How does enjoyment of messaging interactions with potential romantic partners compare with enjoyment of subsequent interactions during initial in-person meetings?

RQ3. In-person meeting outcomes: What are the outcomes of users' initial in-person meetings with potential romantic partners (do they want to meet again)? How does enjoyment of interaction during in-person meetings factor into these outcomes?

RQ4. System design for interaction with potential romantic partners: How can online dating systems be designed to better support interaction between potential romantic partners so that users are more satisfied with and confident about their in-person meeting decisions?

7.2 Study 1

Study 1 represents a first step in understanding the role that messaging interaction plays in how users progress through the online dater evaluation process. This study entailed semi-structured interviews with active users of the online dating system *OkCupid*, a popular online dating system applicable to users with a variety of short term and long term relationship goals. The objective of the study was to gain a broad understanding of how online dating system users make in-person meeting decisions, and how messaging interaction factors into those decisions. Another goal of the study was to gain an understanding of the outcomes of users' initial in-person meetings, and how enjoyment of interaction during in-person meetings factors into those outcomes. Additionally, the study

probed into users' self-presentation strategies to explore how impression management motives may affect online dater evaluation.

7.3 Study 2

In this dissertation, a successful in-person meeting decision is conceptualized as one resulting in the desire to see a potential partner again for a second meeting, or resulting in one's relationship goal for a potential romantic partner being satisfied during the initial in-person meeting (see Table 5.1). Users' chances for this success are maximized when their online impressions of a potential partner match those formed in the first in-person meeting. Given RQ4, learning about online dater evaluation strategies that consistently yield online evaluations that closely match in-person evaluations is important because they can directly inform improvements to online dating system design. For example, if user strategies exist that consistently yield online evaluations that closely mimic in-person evaluations, system design concepts can be devised to encourage adoption of such strategies amongst a broader user base.

The objective of this study was to gain a broad understanding of online dater evaluation strategies that consistently yield online impressions (of attraction-relevant traits and enjoyment of messaging interaction) that closely match impressions formed during interaction in initial in-person meetings. This objective was pursued through semi-structured interviews with online dating coaches who disseminate strategies for how to use online dating systems (including both messaging interfaces and profile pages) to successfully achieve particular relationship goals. These coaches often boast a wealth of experience with the entirety of the online dater evaluation process from using a variety of

online dating systems for personal use and on behalf of multiple clients. This study probed into their self-proclaimed successful online dater evaluation strategies and related self-presentation strategies.

7.4 Construction of Research Artifact

Findings from the previous studies are used to frame user struggles during the post-match stage of the online dater evaluation process (specifically, evaluation through interaction using messaging interfaces). Following a *research through design* approach [237], this framing is used to theorize and reflect on potential design solutions for such struggles. A design for a research artifact to address the identified struggles is proposed.

7.5 Study 3

The final study in the research plan entailed a mixed methods field study of the research artifact created in the previous step. This involved a quantitative and qualitative assessment of the artifact.

Table 7.1 Research Plan Overview

Step	Method	Goal
Study 1. Qualitative exploration of the online dater evaluation process from the perspective of online dating system users	Semi-structured interviews	Broad understanding of how online dating system users make decisions to meet potential partners in-person, how messaging interaction factors into those decisions, and the outcomes of their in-person meetings
Study 2. Qualitative exploration of online dater evaluation strategies considered successful	Semi-structured interviews	Broad understanding of strategies considered successful for evaluating potential romantic partners in online dating systems
Construction of Research Artifact	Research through Design	Synthesize findings from studies 1 and 2 with background literature to design and build a research artifact to better facilitate online dater evaluation
Study 3. Quantitative and Qualitative Assessment of Research Artifact	Mixed methods field study	Evaluate the design intervention built in the previous step

7.6 Summary

This chapter proposed research areas pertaining to the online dater evaluation process, and presented a research plan to explore those areas. In the next chapter, study 1 is presented and findings from the study are discussed in detail.

CHAPTER 8

STUDY 1: QUALITATIVE EXPLORATION OF THE ONLINE DATER EVALUATION PROCESS FROM THE PERSPECTIVE OF ONLINE DATING SYSTEM USERS

8.1 Introduction

Prior research into how users progress through the online dater evaluation process—and struggles they face during this process—has predominantly investigated how users evaluate profile pages during the pre-match stage of online dater evaluation, e.g., [110]. Prior work leaves gaps in knowledge concerning the post-match stage of the online dater evaluation process, particularly how users interact through text-based messaging interfaces and synthesize their evaluations of profile page content and messaging interactions to make in-person meeting decisions. We also have little knowledge of the outcomes of users' in-person meetings—did they want to meet their potential partners again after the first meeting and did their online evaluations of potential romantic partners adequately inform their initial in-person meeting decisions?

This chapter presents study 1, a qualitative study of how online dating system users evaluate potential romantic partners through all stages of the online dater evaluation process, with a focus on the role of messaging interaction in that process.

8.2 Research Questions

Study 1 is motivated by the following research questions.

RQ1. How do online dating system users choose which potential partners to meet in-person and which to disqualify from further evaluation, and what role does messaging interaction play in this process?

RQ1a. How do users evaluate potential partners during the pre-match stage to inform decisions to send IOIs and meet potential partners in-person?

RQ1b. How do users evaluate potential partners during the post-match stage (messaging interaction) to inform decisions to meet in-person?

RQ2. How do online evaluations of potential partners compare to evaluations formed during initial in-person meetings?

RQ3. Do users' self-presentation strategies affect their online dater evaluation strategies? If so, how?

8.3 Method

The above research questions were investigated through semi-structured interviews with 41 users of the online dating system *OkCupid*.

8.3.1 The Online Dating System

Active users from the online dating system *OkCupid* were chosen as the focus for this interview study. *OkCupid* is an appropriate online dating system from which to recruit users because of the following reasons:

Popularity: *OkCupid* is one of the most popular and oldest online dating systems in the world, meaning it attracts a wide variety of user demographics in terms of age and ethnicity (Rudder, 2014).

Relationship goal: *OkCupid* explicitly caters to a variety of relationship goals by letting users explicate multiple relationship goals in a dedicated profile page field, such as long-term relationships and casual sexual encounters. This makes *OkCupid* an appropriate choice for recruiting an online dating system user sample that represents a variety of long-term and short-term relationship goals. In contrast, other popular online dating systems have reputations connected to a particular relationship goal, such as how *eHarmony* and *match.com* are associated with marriage [87], and *Tinder* with casual sex.

Prototypical system design: *OkCupid*'s system design embodies many of the prototypical system features discussed in Chapter 4. For user discovery, *OkCupid* features a content-based matching algorithm with a browse/search page and a swiping interface on the mobile version of the system that displays potential partners one-by-one based on absolute location. *OkCupid* also has an in-depth profile page design that includes profile pictures, dedicated trait fields, and free-text fields, as well as a match percentage and the ability to compare matching algorithm survey answers. For interaction, *OkCupid* facilitates transmission of generic IOIs ("likes") as well as personalized text-based messages.

Platform: *OkCupid* has a browser-based version and mobile app version of the system, enabling the study to capture online dater evaluation experiences of users on both platforms.

8.3.2 Participants

Participants were found using *OkCupid*'s browse/search page. A profile page was created on the system in the lead researcher's likeness—with the research intent of the study clearly described in the profile page—and text-based messages with interview invitations were sent to users found through the browse/search page (see Appendix A for a picture of the profile page). Interview participants were searched for based on a combination of location (within 25 miles of New Jersey Institute of Technology), gender, and ethnicity. Because *OkCupid* has eight different ethnicity choices that users can identify with, this yielded 16 different combinations of search criteria (2 genders x 8 ethnicities).

The top six profiles returned for each ethnicity/gender combination were messaged each week, inviting them to an interview (see Appendix B for the interview request message). This led to 96 users being messaged each week—48 men and 48 women. The interview invitation process persisted for eight weeks, resulting in 864 total users being messaged with an interview invitation. Of these users, 62 responded to the initial interview request and 41 of those resulted in an interview. Of the 21 that did not, 13 responded merely to decline the interview offer, 2 responded with overt sexual advances, and 6 failed to respond after a time and location for the interview were suggested.

Twenty-eight of the 41 interviews were conducted in-person at a location of the participant's choosing, namely coffee shops (13), a bar (1), universities (12), and restaurants (2). The other 13 interviews were conducted online using *Skype* video chat because logistic and scheduling issues rendered an in-person interview impossible. Interview lengths ranged from 22 minutes to 72 minutes. Twenty of the participants were

male, 21 were female, and ages ranged from 19 to 37. In terms of sexual orientation, 34 participants identified as straight, 5 as bisexual, and 2 as gay. Breakdown of ethnicities was as follows: 18 white, 9 black, 5 Hispanic, 3 Native American, 6 Asian, 8 Indian, 2 Middle Eastern, and 1 Pacific Islander. Six participants identified with multiple ethnicities.

8.3.3 Data Collection and Analysis

All interviews were voice recorded and summaries of each interview were written within 24 hours of the interview ending. These summaries involved the lead researcher listening to the interviews and typing descriptions/summaries of the interview answers. Following grounded theory [82], the lead researcher used an iterative process of coding these answer summaries and re-coding them after new interviews were completed to identify emerging themes. This coding was done by hand using print outs of the interview summaries.

This iterative coding process informed revisions to the interview guide, such as themes that should be probed on more deeply (see Appendix C for the final iteration of the interview guide). Summaries instead of full transcripts were used to inform interview guide revisions because of the rapid succession of scheduled interviews. The interview guide went through 3 iterations to reflect and hone in on emerging themes identified during the open coding process. The first interview guide sought to grasp a broad understanding of participants' post-match evaluation habits and experiences. The second iteration placed expanded the focus to self-presentation and evaluation practices during both the pre-match and post-match stages of online dater evaluation. The third and final iteration explored online dater evaluation validation during face-to-face meetings in more detail.

When the interview process was completed (no new themes emerging from the interview summaries), 36 interviews were selected for transcription (the five omitted from transcription were early interviews and/or those that were particularly short).

An iterative coding process was then conducted on the interview transcripts, which involved line-by-line coding of the transcripts according to Strauss and Corbin [199]. The coded transcripts were reviewed to identify and refine theoretical categories, propositions, and conclusions that emerged from the data [149]. New codes were added throughout the process and earlier interviews were recoded to expand on or refine new categories. The findings of this study are the results of the open coding process. Representative quotes of the findings, as presented in the next section, are derived from the transcriptions. Participants' names were changed for privacy.

8.4 Findings

The findings are organized around the three stages of the online dater evaluation process: pre-match evaluation, post-match evaluation, and initial in-person meetings.

8.4.1 Pre-Match Evaluation and Decisions to Send IOIs

8.4.1.1 Ideal partner preferences for demographic and lifestyle traits heavily influence evaluation of profile pages. Physical attraction based on profile pictures was a requirement for most participants to send/reply to messages and meet another user in-person. However, dedicated fields for demographic and lifestyle traits also played integral roles in this decision process. Some participants had specific requirements for these trait fields that they called “deal breakers,” which were used to immediately

disqualify potential partners from further evaluation—e.g., if a user did not satisfy a minimum height or if they self-identified as a cigarette smoker they would be immediately disqualified regardless of the physical attractiveness of their pictures. Some participants then scanned open-ended content for signals of unobservable traits like personality. However, these participants indicated that personality signals in open-ended content were not commonly detected, and those that were detected were typically negative. For example, similar to findings from Ellison and colleagues [55], a few participants discussed grammatical errors in free-text content as signals of poor intelligence.

Michael, 24: “I’ll look at the profile first. If their physical features catch my eye I’ll look for grammatical errors [in the open-ended profile elements]. This tells me a lot about a girl’s intelligence.”

8.4.1.2 IOIs were more important than profile content for women.

OkCupid allows users to send IOIs in the form of generic “likes” or personalized text-based messages before a match is established. Several participants, particularly women, reported IOIs being the most common way that they discovered potential romantic partners in *OkCupid*. For these participants, IOIs received during the pre-match stage often had a greater bearing on decisions to match than content found in the respective users’ profile pages.

Most had unfavorable views of generic “likes,” considering them too impersonal and indicative of a lack of effort on behalf of the sender to show genuine interest. They would typically reject potential partners purely for their decision to send a generic IOI. Several participants, especially female and gay users, discussed how they would also not

respond to personalized IOIs (text-based messages) if the content of the message received did not immediately catch their attention. This was because female and gay participants were receiving considerably more text-based messages than straight males (often 20-60 weekly, versus 0-5 for straight men). These messaging rate disparities are consistent with quantitative studies of online dating system data sets [63].

Amanda, 28: “First I read his message. If it’s a one-liner like ‘hi,’ I won’t even bother with the profile. [...] Then I’m looking for immediate disqualifiers on his profile—religion, politics, and height. [...] During messaging [...] I want to see his conversational abilities too.”

Rose, 24: “I’m tall, 5’9”, so I check that. But the message has to be good first.”

Jonathan, 32: “I almost didn’t message [my current boyfriend] back. He didn’t have good pictures, but I liked his message. I’m generally more interested in the message.”

Carry, 19: “I don’t like long messages, or ones that are immediately sexual, or bring up an ex, or sound like they’re not taking it seriously. [...] Yeah, I’ll reject a guy purely on this.”

8.4.2 Post-Match Evaluation and Decisions to Meet In-Person

8.4.2.1 Users do not make in-person meetings decisions before the post-match stage.

There was no evidence that information derived during the pre-match stage alone, such as profile page content, led directly to the exchange of contact information and the arrangement of an in-person meeting. Instead, most participants required a conversation through text-based messaging before meeting a user in-person. Twenty-two out of 24

participants said that the content of text-based messages received during the post-match stage was more important than information available on profile pages when deciding whether to meet a potential romantic partner in-person.

Jonathan, 32: “The profile only helps me in the beginning, but yeah, it’s our conversation [through text-based messaging] that makes me want to meet him—or run away.”

Erica, 28: “I’ll give him my [phone] number when our conversation [through text-based messaging] doesn’t have that ‘question, answer’ feel. When the messages are intellectually stimulating.”

8.4.2.2 Text-based messaging interaction consists of thinly-veiled attempts at self-presentation and evaluation.

In *OkCupid*, text-based messaging interactions are unprompted or open—there are no instructions in the interface and users can choose whichever conversation topics they like. This enables users to ask specific questions to potential partners that they think will aid in their evaluations. However, potential partners can consciously weigh their answers to these questions or re-direct the conversation to other topics that they think will positively influence how they are evaluated. For most participants in this study, text-based messaging interactions felt awkward and “*inorganic*” because they were perceived as thinly veiled attempts at more targeted evaluation and self-presentation. As a result, participants struggled to feel “*chemistry*” or compatibility with a potential partner before meeting in-person and they had little confidence in their online evaluations.

Yvette, 30: “[Before meeting in-person] I really have to vibe with you. That’s by having a natural conversation, but it doesn’t happen a lot.”

Janet, 23: “Some guys try too hard to be funny. They end up just coming off as creepy.”

Linda, 21: “I’m not too confident [about my online evaluations]. A person online, you never know how they really are.”

Several participants remarked how interaction through *OkCupid*’s messaging interface is distinctively different from how interaction often occurs between potential romantic partners in offline settings. In physical world settings—such as nightclubs, bars, and parties—evaluation of a potential romantic partner is never the primary or explicit activity. Evaluation of potential partners takes a secondary role to dancing, drinking, or socializing with friends—activities that enable people to plausibly deny that romantic evaluation is the purpose of their interactions. These activities provide an opportunity to evaluate potential romantic partners through behavior and statements not necessarily expressed with the intention of influencing evaluation.

The text-based messaging interface in *OkCupid*, by contrast, makes self-presentation and evaluation explicit. Several male participants employed a strategy during messaging interaction that involved sending premeditated and prewritten message content as a form of advertisement to hold a potential partner’s attention long enough to procure one more response.

Edward, 24: “Sure, I’ll re-use messages that have worked in the past. I bring up Obama and politics a lot because it makes me look smart.”

Madhan, 25: “I wouldn’t even call it a ‘conversation’ anymore. My [messaging] routine has become so specific. First, I’ll start with a generic ‘copy & paste’ message that has

gotten responses for me in the past. Then I'll include something personal about the girl to show that I've read her profile."

8.4.2.3 Anxiety regarding abrupt rejection exacerbates impression management motives during messaging interaction. Most participants adhered to particular gender roles for self-presentation and evaluation when using the messaging interface. Specifically, male participants typically assumed the predominant role of self-presenting information that they thought would be perceived as attractive, and female participants typically assumed the predominant role of evaluating and judging men based on the quality of their messages. These roles seemed a by-product of choice during the post-match stage. For example, some female participants reported seldom putting a concerted effort into self-presentation during text-based messaging interactions because they tended to receive many IOIs and thus had less concern over being rejected by any one user.

Male participants subscribing to these roles expressed a great amount of anxiety when it came to messaging interactions because they knew that one "bad" message could lead to abrupt rejection by a female evaluator. This anxiety spoke to an unavoidable interconnection between self-presentation and evaluation during messaging interactions. Participants realized that they could only continue evaluation of a potential partner as long as that potential partner considered them attractive enough to continue evaluation as well. This realization exacerbated male participants' fears regarding self-presentation during messaging interactions.

For example, some male participants doubted their ability to self-present attractively through text-based messaging, which led to them randomly changing their

messaging strategies or re-using message content that previously garnered replies in hopes of prolonging messaging interactions.

Barry, 24: "I used to send long paragraphs, but now I send short messages where I try to make fun of the girls. Honestly, I have no idea what's working, I just don't want them to think I'm insecure."

While these gender roles for self-presentation and evaluation induced considerable anxiety in male participants, most female participants embraced their role as evaluator and recounted several instances in which they hastily disqualified potential partners from further evaluation because of a single message that they did not find enjoyable.

Mary, 30: "It's all about communication. Like, I'll stop messaging if I'm funnier than you. Sense of humor says a lot about a person."

A few male participants were so wary of this abrupt rejection that they would stop responding permanently during a text-based messaging conversation if they could not think of something funny or witty to say.

Barry, 24: "If I don't know what to say, I just don't respond. [...] It's my fear of failure. I'm trying to work on that."

8.4.2.4 Progressing online dater evaluation off of the online dating system is a moment of truth.

Self-presentation anxiety during messaging interactions was most pronounced when attempting to move communication off the online dating system to the phone or an in-person meeting. Some participants called this a "moment of truth," in which a text-based messaging conversation would immediately end if a phone number or date idea was given too soon. "Too soon" did not coincide with a fixed time frame or

number of messages, but rather the comfort level of the participant during the messaging conversation. Some female participants said a phone number given too early was a signal of poor social skills and made them feel uncomfortable. They seldom responded to any future messages from a man if this happened. Conversely, female participants recalled feeling annoyed when men took too long to give their phone number. They did not feel it was the woman's role to escalate communication off the system and would stop responding if the man waited too long to give a phone number or propose an in-person meeting.

Rachel, 28: *“Sometimes the conversation can get really long—as many as 57 messages this one time—because I’m waiting for the guy to pull the trigger [and ask me out on a date]. I can’t bring myself to do it. That’s his role.”*

Rebecca, 25: *“Some guys take too long. By the time he gives his number, I’m not actually interested anymore. But if it’s too early, I’ll stop responding completely. Either way the messaging is done.”*

Progressing online dater evaluation to interfaces outside of the online dating system, such as phone calls or *Skype* chats, was frowned upon by many participants because of the privacy trade offs and awkward situations that can arise while interacting through these tools (such as awkward silences during phone conversations, or wearing unflattering clothes like pajamas during a video chat). Because of the issues of privacy and awkwardness, most participants reported that they seldom engaged in voice or video conversations after exchanging phone numbers. Text messaging (SMS) was the typical—and often only—mode of interaction after exchanging phone numbers.

Courtney, 27: “We’ll exchange [phone] numbers to arrange a date, but I’ll only use text messaging. A phone call is just weird. Once I start talking I can go on and on and on. It’s embarrassing.”

Marissa, 19: “There’s no way I’d do a video chat. I don’t want them to see what I’m doing!”

This aversion to richer interaction media contrasts with survey data from Gibbs and colleagues [81], which indicated phone calls being amongst the most commonly used uncertainty reduction strategies by online dating system users.

8.4.2.5 Users expect their online evaluations to be deemed inaccurate in-person.

A majority of participants felt limited by interface components on *OkCupid* for online dater evaluation. As a result, many of them expected their online evaluations to be deemed inaccurate in-person.

Connor, 24: “The people you meet in person, they’re always a little off. That’s always going to happen.”

Rebecca, 23: “I try not to form impressions too much on the site because guys are always different on the site than in real life.”

Expectations of inaccurate online evaluations largely pertained to enjoyment of interaction and traits expressed through interaction, such as personality. Participants felt similarly stifled by the system’s interface components for self-presenting their own personalities and behavioral tendencies during interaction. Some participants remarked that they had progressed online dater evaluation off of the system to phone calls, *Skype*, and in-person meetings faster than they were normally comfortable with in order to better

self-present and evaluate interaction tendencies or traits that are naturally expressed through face-to-face interaction.

Becky, 22: *“I speak sarcastically a lot. That’s just not going to work online.”*

Amanda, 29: *“[Messaging interaction] is very artificial, and they can take the time to craft their persona. Now I make them do a Skype video chat. I want to see their conversation skills.”*

Jonathan, 30: *“With both guys that I met, we met up in less than a week [after text-based messaging began]. We both thought it would be a lot easier to get to know each other that way.”*

Because of the expectation of inaccurate online evaluations, participants seldom considered their first face-to-face interaction with another user to be a “date,” but rather a chance to validate and build on impressions formed online that would ultimately inform their decision to meet for a (second) more explicitly romantic date.

Ben, 26: *“I hate calling it a ‘date date.’ I like it to start as friends first and see if we have things in common.”*

Javier, 24: *“It’s not really a date. More like a pseudo-date because it’s more like an interview. I’ll schedule something more romantic for the second date if it goes well.”*

Malcolm, 25: *“I’ve met seven girls. None have gone to a second date, but I was only genuinely excited about meeting one of them. It’s normal because sometimes you meet just to get more information. Is there chemistry, you know?”*

Participants often planned their first in-person meetings to be non-committal, in which they could easily leave early if they determined their face-to-face interaction to be

too unenjoyable. Common first meeting plans involved coffee shops and similar public areas because these locations afforded a “quick exit” for participants without a significant time investment. These non-committal dates echo findings from Gibbs and colleagues [81] as well as Couch and Liamputtong [37].

Marissa, 19: “We’ll pick places that don’t require much commitment, like coffee. [...] Definitely not dinner. I don’t want them to look at me eating.”

If the first meeting was going well, however, participants explained how they would alter the meeting in real time to incorporate more romantic activities.

Connor, 24: “I go into it like we’re just hanging out. But during that first hang out, if I’m attracted, okay now it’s a date. It’s really after it started do I determine if it’s a first date.”

8.4.3 In-Person Meetings

8.4.3.1 Most first dates do not result in a second date. All but four participants met at least one other user face-to-face for an arranged meeting. A majority of their first in-person meetings, however, did not result in a second meeting. This was viewed as normal because the first in-person meeting was often perceived as just another step in online dater evaluation.

The routine failure of first in-person meetings was typically attributed to a lack of enjoyment with face-to-face interaction. This often involved unattractive aspects of personality being signalled through interaction. Contrary to prior research, there was little evidence that unsuccessful in-person meetings were a result of misrepresented physical appearance [54].

Mary, 30: *“I’ve met 10 guys. Three went to a second date. [...] It’s usually personality. They don’t feel congruent with their online selves.”*

Ariel, 27: *“About 50% of the time [my impressions] were inaccurate. It’s because they talk very differently in real life than they do online.”*

Katherine, 27: *“My most recent date was so awkward. He sounded adventurous when we were messaging, but he wasn’t very open-minded when we met at a restaurant.”*

Lara, 21: *“The second guy I met was very reserved in-person. Our personalities didn’t jive. [...] We never spoke again.”*

Jack, 28: *“There was one date that just went horribly. She was just dumb. We went out to dinner and she was like ‘what’s a scallion?’ I had no hint of that online, that she was that stupid.”*

Most participants found their potential partners to be less romantically attractive during in-person interaction than their messaging interactions led them to expect. However, a few participants recounted finding some partners to be more romantically attractive than they were expecting.

Connor, 24: *“She came off as really cool and nonchalant [in her messages]. She’s not really like that [during in-person interaction], but I like her for totally different reasons now.”*

Some participants had a tendency to attribute unenjoyable face-to-face interaction to intentional deception, even if the respective potential partner did not admit to deceiving purposely.

Pamela, 23: "Then you meet them and you find out they lied because they're not like you were expecting."

Other participants acknowledged the possibility that an unexpected lack of enjoyment with face-to-face interaction could have occurred without a potential partner deliberately trying to deceive online, recalling reverse instances in which their partners explained impressions they formed from their face-to-face interaction that did not align with any intended self-presentation.

Javier, 24: "The one girl that didn't turn into a relationship, I was too intimidating she said, and too nice. [laughing] Yeah that doesn't make sense, but that's what she thought."

William, 35: "I'm not sure if it was a misrepresentation on their part, or a miscalculation on my part."

8.5 Discussion

This study provided insight into how users of the online dating system *OkCupid* progress through the entirety of the online dater evaluation process, and revealed that participants' initial in-person meetings typically did not result in a second meeting. This appeared to be mainly due to unenjoyable face-to-face interactions that signaled unattractive aspects of personality that were not detected online during messaging interaction.

Some of the system-use tactics employed by users in this study appeared ultimately detrimental to their online dater evaluation outcomes, yet such tactics are not surprising in light of theories historically applied to romantic attraction research. This section discusses some key theories of romantic attraction that explain the system-use

tactics adopted by users in this study, and associates elements of online dating system design that propagate these tactics.

8.5.1 The Importance—and Self-Imposed Struggles—of Messaging Interaction

Behavioral theory positions enjoyable or “rewarding” interaction as central to decisions to continue evaluation of potential romantic partners [91,123]. As would be expected from behavioral theory, messaging interaction was of paramount importance to participants of this study before meeting potential partners in-person and, particularly for women, enjoyable messaging interaction was often a necessary precursor to an in-person meeting. However, enjoyment of messaging interaction did not necessarily lead users to expect subsequent in-person interactions to also be enjoyable. This seemed to be based on a realization from participants that overt evaluation and self-presentation motives that dictate messaging interactions yield behavior/content during such interactions that poorly indicate behavior during subsequent in-person interactions.

If online dater evaluation during the pre-match stage is fitting of a shopping metaphor [107], then the overt self-presentation and evaluation strategies during messaging interactions discovered in this study seem deserving of an audition metaphor. This draws parallels to the classic dramaturgical metaphor at the heart of Goffman’s work regarding self-presentation [84], albeit with roles in this metaphor being delineated by gender. In this study it was discovered how some users, typically men, adopt the text-based messaging interface to anxiously bid—or audition—for the sustained attention of potential partners who they fear will hastily reject them if their messages are uninteresting. And other users, often women, confirm these fears by assuming the role of strict evaluator of these auditions—a director, so to speak—by probing message content

for any reason to reject the respective user and shift focus to a long list of other interested suitors.

It is perhaps ironic that participants complained about the inauthentic or “inorganic” feeling of their text-based messaging interactions when they, themselves, did little to encourage more natural interactions. As a result of their overt self-presentation and evaluation stances, they stifled opportunities for interactions that would be predictive of face-to-face interactions (during which their messaging strategies would be untenable, e.g., premeditated verbal dialogue would quickly be exhausted, and abrupt exits from face-to-face interactions would be socially frowned upon).

But is this tendency to distort the text-based messaging interface into a more personalized self-presentation and evaluation tool indicative of unwillingness to engage in more natural “off-the-cuff” interaction, or unfamiliarity with how to conduct such interactions? Perhaps users in this study found natural conversations to be a rarity because they and their potential partners did not know how to spark them in a system design that had otherwise encouraged deliberate self-presentation and evaluation through profile pages.

8.5.2 Choice: The Pros and Cons of Continuing Online Dater Evaluation

According to social exchange theory (Chapter 3), the decision to continue evaluation of a potential romantic partner would be the result of weighing the perceived costs and benefits of doing so. If the perceived or expected costs outweigh the benefits, then evaluation of a potential romantic partner is discontinued. A factor that can influence the costs and benefits of continuing evaluation of a potential romantic partner is choice—the

number and variety of potential romantic partners available to a person [141,143]. Choice induces an assessment mindset in which multiple potential romantic partners are evaluated in comparison to available alternative partners rather than solely to one's goal [58].

The assessment mindset induced by choice appeared to influence the ways that participants in this study perceived the costs and benefits of continuing online dater evaluation at both the pre-match and post-match stages.

8.5.2.1 Choice in the Pre-Match Stage. *OkCupid* facilitates the discovery of a near limitless number of potential romantic partners during any one sitting of accessing the system. Participants in this study seemed keenly aware that there would always be more potential partners to discover while viewing any one user's profile page, which put them in an assessment mindset when evaluating profile pages.

A perceived cost of continuing evaluation of a particular potential partner under these conditions was the inability to discover and evaluate other, potentially more attractive potential partners on the system (i.e., the more time one spends on one potential partner, the less time they have to discover and evaluate alternatives). As such, participants' primary objective when viewing a profile page was to look for reasons to disqualify the respective user from further evaluation—a way to cut down on the vast array of potential partners at their finger tips. Developing “deal breakers,” or strict requirements for answers to dedicated trait fields, was one way that users went about expediting the process of slimming down the pool of potential partners and reducing the perceived opportunity cost of evaluating one potential partners in a sea of available alternatives.

8.5.2.2 Choice in the Post-Match Stage. The influence of choice on online dater evaluation persisted into the post-match stage, but it affected participants in different ways by gender. Female participants perceived higher costs of continuing a text-based messaging conversation than men because they received messages from more potential partners than men. Female participants were thus stricter about which messages they responded to because they knew they would consistently have more potential partners to wade through and choose from in the post-match stage. Indeed, many female participants reveled in their role as strict evaluator as they scanned received messages looking for reasons to disqualify the respective user.

Male participants, on the other hand, did not have the same confidence in a steady stream of interested potential partners because they did not receive as many messages from women. For them, the perceived benefits of continuing any text-based messaging conversation consistently outweighed the perceived costs. Yet more importantly, they understood that female users perceived text-based messaging conversations as costly. The notion that any message they sent could be grounds for disqualification from further evaluation induced anxiety in many of them. This culminated in self-presentation becoming a predominant motive during the post-match stage in an attempt to ensure that female users always perceived the benefits of interacting with them to outweigh the costs. In this regard, the primary cost of continuing a text-based messaging conversation for men was the chance of rejection and the emotional toll it would incur.

8.6 Limitations

There are some limitations of this study that need to be noted. While online dating systems are used by adults into their 60s [199], the participants in this study were predominantly in their 20s and none were older than 37. As such the findings of this study may not be generalizable to online dating system users in older age groups.

Additionally, despite the wealth of insight into online dater evaluation that this interview study has provided, it stills leaves us with two considerable gaps in knowledge. For one, the study provided little insight into online dater evaluation strategies that users considered successful at consistently yielding evaluations of users deemed accurate during the first in-person meeting (i.e., true-positive online dater evaluation outcomes). Instead, participants' decisions to meet potential partners in-person were often deemed false-positives (i.e., the potential partner was considered attractive online, but subsequently deemed unattractive in-person). This is to be expected when studying active users of online dating systems because users with successful strategies for consistently yielding true-positive evaluation outcomes would likely have already satisfied their relationship goals and would presumably no longer be active users of online dating systems (especially if their goals involved long-term relationships). Indeed, many participants in this study admitted to the interviewer that a motivation for agreeing to the interview was to solicit feedback about their system-use behavior and advice on how to improve their chances of a finding a romantic partner.

As such, the findings of this study do not necessarily indicate that online dating system designs prevent successful in-person meeting decisions. Rather, this study's sample simply did not feature any users that possessed such strategies.

Online dating system users can only confirm or validate online dater evaluation decisions that culminate into in-person meetings. Negative evaluations online that result in a user disqualifying a potential partner from further evaluation cannot be validated by the user because—barring serendipitous in-person meetings—they are declining the opportunity to validate their online evaluation in-person. It is unknown if the potential partners deemed unattractive online by users in this study would have likewise been deemed unattractive in-person.

8.7 Summary

This chapter presented study 1, which entailed a qualitative study of how online dating system users evaluate potential romantic partners through all stages of the online dater evaluation process. It was found that initial in-person meetings between users seldom culminate in a mutual desire for a second meeting. This was often due to a lack of enjoyment with interaction during initial in-person meetings and unattractive aspects of personality signaled through such interaction. Deviations between enjoyment of face-to-face interactions and prior messaging interactions (which informed decisions to meet in-person) seemed to stem from a tendency of users to employ text-based messaging as an interface for thinly veiled self-presentation and evaluation strategies rather than an interface to have naturally flowing conversations.

CHAPTER 9

STUDY 2: QUALITATIVE EXPLORATION OF ONLINE DATER EVALUATION STRATEGIES CONSIDERED SUCCESSFUL

9.1 Introduction

In this dissertation, a successful in-person meeting decision is conceptualized as one resulting in the desire to see a potential partner again for a second meeting, or otherwise the achievement of one's relationship goal regarding the respective partner (see Table 5.1). Users' chances for this success are largely contingent on online evaluations of potential partners (including attraction-relevant traits and enjoyment of messaging interaction) largely matching evaluations from subsequent in-person meetings. The previous study provided valuable insight into online dater evaluation strategies adopted by users of *OkCupid*, but these strategies were largely unsuccessful (first meetings typically did not result in mutual desire for a second meeting). This stemmed largely from unenjoyable face-to-face interactions and unattractive traits signaled through those interactions.

Learning about online dater evaluation strategies that consistently yield successful in-person meeting decisions is important because they can directly inform improvements to online dating system design. For example, if user strategies exist that consistently yield messaging interactions that are similarly enjoyable to subsequent face-to-face interactions, system design concepts can be devised to encourage adoption of such strategies amongst a broader user base.

Various approaches can provide a reasonable starting point for researching these strategies. One approach would be to investigate the system-use strategies of former users who are currently in a relationship with someone they met through an online dating system. However, such studies would invariably suffer from recall bias. Former users also may not necessarily have had multiple opportunities to validate the success of their online dater evaluation strategies with in-person meetings and their relationship goal achievement may have been a matter of happenstance independent of online dater evaluation success. Another reasonable approach would be to investigate online dating coaches whose professional focus is to help users successfully use dating systems towards achieving their relationship goals. Given this focus, one can assume that online dating coaches have a wealth of data and experience from coaching multiple users, which provides them multiple instances to gauge the success of the online dater evaluation strategies that they advocate. This type of experience contrasts with typical online daters who can leverage only their own experiences and who may not have had several opportunities to validate the success of their strategies with in-person meetings.

This chapter presents the second study in this dissertation's research plan, a qualitative exploration of the online dating system-use strategies advocated by online dating coaches as conducive to achieving particular relationship goals, with a focus on the role that messaging interaction plays in this process. While a retrospective study such as this cannot objectively verify the outcomes of in-person meetings, it represents a first step at exploring online dating system-use strategies intended to yield successful in-person meeting decisions.

9.2 Online Dating Coaches

Online dating system users sometimes hire online dating coaches to help them remedy struggles with the online dating process. Online dating coaches claim to have knowledge of successful system-use strategies that are generalizable to a broad user base, and they train users to adopt such strategies (e.g., <http://theheartographer.com/>). There is considerable awareness of online dating coaches in popular media, with multiple features on TV, radio, and print media (<http://www.cyberdatingexpert.com/in-the-news/>), and dating site companies such as *eHarmony* hiring online dating coaches as “resident experts” (<http://melanieschilling.com>). Online dating coaches often specialize in helping clients achieve long-term relationships (<http://www.carmeliaray.com>), with some catering to specific markets like developmentally disabled users (<http://hitchcraftdating.com>). There are also coaches who specialize in online dating system-use strategies for casual sexual encounters, called “pickup artists” (Strauss, 2004). These coaches are usually male and use their personal experience in seducing women for sex as the basis of their strategies (<http://3girlsaday.com>; <http://executetheprogram.com>).

Services and products offered by online dating coaches range widely in terms of personalization. Generalized online dating system-use strategies are often sold in e-books, physical books, and video tutorials (<http://www.vanae.com>). As products and services become more personalized, coaches require access to the client’s online dating accounts, such as for writing the client’s profile page (<http://profilepolish.com>). The most personalized coaching service is commonly called “concierge” wherein the coach impersonates the client online, maintaining their profile page, exchanging messages with other users, and arranging dates for the client (<http://www.eflirtexpert.com>). One-on-one

Skype and phone coaching sessions are also typical for providing online dating system-use strategies (<http://www.alittlenudge.com>).

9.3 Research Questions

Study 2 is motivated by the following research questions:

- RQ1.** What are the online dater evaluation strategies that online dating coaches advocate for choosing which potential partners to meet in-person and which to disqualify from further evaluation, and what role does messaging interaction play in these strategies?
- RQ2.** Are the online dating coaches' advocated evaluation strategies influenced or affected by the self-presentation strategies that they advocate? If so, how?
- RQ3.** Why do online dating coaches consider the online dating system-use strategies that they advocate to be successful?
- RQ4.** How does online dating system design influence the coaches' advocated online dating system-use strategies?

9.4 Method

The above research questions were investigated through semi-structured interviews with 34 online dating coaches.

9.4.1 Participants

In recruiting participants, someone was considered an online dating coach if they 1) self-identified as one and explained the source of their expertise on their website, and 2) sold coaching products/services specific to online dating. As there is no official registry of online dating coaches from which to extract a representative sample, a comprehensive online search strategy was used to identify participants. *Google* and *Youtube* searches were conducted for 10 different terms including “online dating expert” and “online dating coach.” *Google* was chosen to find the personal websites of and articles written about online dating coaches, while *Youtube* was chosen to find videos of coaches being interviewed for TV or discussing their advice. The first 20 pages of results for each search were reviewed (3000 links total), yielding a list of 132 unique online dating coaches (Table 1). Searches were conducted from a computer at New Jersey Institute of Technology, and the computer’s IP address may have influenced the search results.

Table 9.1 Demographic Breakdown of 132 Online Dating Coaches Found

Coaches	Male	Female	Team	Total
Casual sex advice	20	0	0	20 (15%)
Long-term relationship advice	23	79	3	105 (80%)
Advice for both goals	2	5	0	7 (5%)
Total	45 (34%)	84 (64%)	3 (2%)	132

All 132 coaches were sent an interview request through e-mail (see Appendix D for the interview request message). Thirty-nine coaches (29.5%) responded, but 5 failed to culminate into an interview because of scheduling conflicts, resulting in 34 total interviews (Table 9.2).

Table 9.2 Demographic Breakdown of 34 Online Dating Coaches Interviewed

Coaches	Male	Female	Total
Casual sex advice	7	0	7 (21%)
Long-term relationship	8	18	26 (76%)
Advice for both goals	1	0	1 (3%)
Total	16 (47%)	18	34

The interviewed coaches were predominantly based in the United States, followed by Australia (2) and the United Kingdom (2). The interviewed coaches for casual sex pursuits provided online dater evaluation and self-presentation strategies only for male clients, while three of the coaches for long-term relationship pursuits provided strategies only for female clients. All of the interviewed coaches considered their online dating system-use strategies most applicable to heterosexual online daters. Most of the interviewed coaches disseminated some or all of their online dating system-use strategies through one-on-one advice sessions and impersonation of clients in online dating systems (e.g., making the profile page, evaluating potential partners online, and writing messages on behalf of the client). Generalized products such as videos, audio files, and e-books were also common, especially for coaches that specialized in casual sex pursuits. Most of the coaches' online dating system-use strategies were intended for the online dating systems *Okcupid*, *Tinder*, *Plenty of Fish*, and/or *Match.com*.

In regards to willingness to disclose proprietary online dating strategies during interviews, most of the coaches indicated that disclosing their proprietary strategies was not a threat to their business because most of their profit is generated through one-on-one, personalized coaching services in which their proprietary online dating strategies are tailored to each client.

9.4.2 Data Collection and Analysis

Thirty-three of the 34 interviews were conducted over *Skype* video or voice chat, while one was done in-person at a coffee shop. All interviews were voice recorded and transcribed. Interviews ranged from 28-81 minutes. The semi-structured interview guide had two primary sections: online dater evaluation strategies and self-presentation strategies. Both sections organized questions around the two standard interface components that would facilitate such strategies in any online dating system: profile pages and text-based messaging interfaces. The interview protocol also probed into why the coaches' system-use strategies were considered successful and how that success was determined (see Appendix E for the first iteration of the interview guide).

Following a grounded theory approach, an open coding scheme was used to derive preliminary themes and theoretical constructs [82] about the coaches' advocated strategies. This involved line-by-line manual coding [204] of print outs of the transcripts by the lead researcher. New codes were added throughout the process and old interview transcripts were re-coded as new interviews were completed to include and refine new categories and concepts that emerged from the data [149]. Emergent themes from the open coding process occasionally informed revisions of the interview guide when gaps in interview scheduling accommodated such revisions.

For example, the first round of interviews was conducted mostly with coaches for casual sex pursuits, and the initial coding scheme revolved mostly around self-presentation practices. The second round of interviews included more coaches with advice for other (long-term) relationship pursuits, and an updated interview guide was designed to probe more deeply into user evaluation, conceptualizations of online dating

success, and reinforcement of self-presentation themes from earlier interviews. The third round of interviews probed more deeply into how system design influenced the advocated strategies for evaluation and self-presentation. After each of these three rounds of interviews—and at the end of the interview process—interview transcripts were recoding to include new code categories. For example, the final attempt at re-coding of interview transcripts involved coding self-presentation and evaluation strategies around respective system interface components and elements within those components (e.g., particular sections of profile pages).

9.5 Findings

9.5.1 Validation of Online Dating System-Use Strategies

Most of the coaches validated success of their online dating system-use strategies through “track records” of previous clients who kept them informed about the outcomes of their in-person dates and accomplishments of their relationship goals. Some coaches also validated the success of their strategies through personal experience with using online dating systems for their own relationship pursuits, although not all of the coaches used online dating systems to pursue their own goals. In addition to the outcomes of in-person meetings, it was common for coaches to document online dating statistics like profile views and message responses in spreadsheets to inform modifications to their advocated system-use strategies. These statistics pertained to their personal online dating system-use and clients who granted the coaches access to their online dating accounts.

Coach 22: “I come at it with a more analytical approach than most people do. I do track a lot in spreadsheets. I track my clients’ response rates, my own response rates.”

9.5.2 Defining Successful Use of Online Dating Systems

Several coaches considered their online dating system-use strategies successful because they procured in-person meetings quickly and consistently for themselves and/or their clients with minimal effort, regardless of which particular user a date was planned with (the tactics that facilitate this success are described in the next finding).

Coach 21: “Success to me is are you getting more attention online and are you going on more dates.”

Coach 18: “I define success for [my clients] as how many dates they get [...] versus how many they were getting before.”

Many coaches did not factor the outcomes of initial in-person meetings into their definitions of successful online dater evaluation strategies. Several admitted that mutual romantic attraction on the first in-person date through their strategies is low. As such, first dates that lead to a second date or end in casual sex were not guaranteed by the coaches, and were even considered uncommon by some. Because of this expectation, a few coaches advocated short, non-committal dates (e.g., one hour at a café) to minimize time wasted on partners ultimately deemed unattractive in-person—a strategy also exhibited by *OkCupid* users in study 1.

Coach 11: “[I teach] how to set up that first date so it’s not a waste of time and money. I call it a date zero. The sole purpose of it is to have a very brief, cheap interaction that you sandwich in on the way to the gym, you know. You lower your expectations so it’s realistic.”

9.5.3 Online Dating System-Use Strategies

The main online dating system-use strategy advocated by most coaches entailed one, intentionally minimizing online evaluation to basic attraction criteria and two, using online self-presentation tactics to persuade potential partners who satisfied minimum attraction criteria to meet in-person quickly where a more thorough evaluation could be conducted.

This strategy was typical for most coaches regardless of the relationship goal they catered to. Hence findings for all relationship goals are presented jointly. Tactics that comprise this overarching strategy are organized under the two prototypical system components for online dater evaluation and self-presentation: profile pages (which is further divided by profile pictures, demographic and lifestyle trait fields, and free-text fields), and messaging interfaces. The following references to “the coaches” pertain to coaches for both casual and long-term relationship goals unless explicitly stated otherwise.

9.5.3.1 Profile Pictures. The coaches advocated that both men and women should use physical attractiveness based on profile pictures as the primary influence on online dater evaluations and decisions to meet in-person. While the coaches acknowledged that pictures might be deceptive, many stressed that the costs of deception are minimal if users meet in-person quickly and do not waste considerable time on online interaction.

Physical attractiveness through profile pictures was also considered a vital element of successful self-presentation, but more so for women than for men. Based on the perception that male users evaluate potential partners predominantly on physical features, some coaches suggested hiring a professional photographer to ensure that

female clients maximize their physical attractiveness (*coach 17: “Our [highest level] clients, we’ll set them up with a professional photographer”*).

Some coaches said that female users’ attractive pictures should also be targeted towards men with a desired lifestyle as a way to encourage such men to message them. For example, coach 25 discussed a recent client: “[*My female client*] wants an outdoorsy guy that will go hiking and will love her dog. I looked at all her [*profile*] photos and every one of them is geared towards an artsy Brooklyn hipster [...]. Is that attractive? Yeah those are great photos. Is it going to attract her outdoorsy guy that is going to chop wood at her cabin? No.”

For men, coaches often advised that profile pictures be used to advertise physical appearance in the context of exciting and social lifestyles. Many of the coaches advocated a lifestyle conveyance that showcased their interests as well as their social value—having caring friends and being the leader in social situations. A few coaches suggested staging photos to craft an appealing snapshot of one’s social life.

Coach 2: “You can ask your friends to pose for the photo. Make it look like you’re saying something important and everyone is listening to you.”

Some coaches explained that men’s lifestyle photos, which should showcase activities and social value, lead prospective female partners to imagine the possession of attractive personality traits that they assume men who engage in such lifestyles would have. They credited this as a reason users would express more interest in their clients.

*Coach 33: “Especially if your [*written profile content*] is lacking, the photos can take the place of having that personality. Like okay, his [*written content*] is a little dull, but look at all the shit he does in real life. He’s got to have a great personality.”*

9.5.3.2 Demographic and Lifestyle Trait Fields. Users can usually corroborate their evaluations of physical attractiveness through dedicated fields in profile pages for height and weight. Yet several coaches discouraged strict requirements (“deal breakers”) for demographic trait fields during evaluation, for two reasons: 1) they tend to be exaggerated, and 2) they believed that users have a tendency to (incorrectly) infer unobservable traits from these fields.

Coach 21: “If they [clients] tell me well he has to be 6’2”, I’ll say why. [...] A lot of times what we’ll get to after ‘why why why’ is the real answer. [...] Sometimes the answer is well my last boyfriend was short and he was sort of uncomfortable with that and it was always a problem in our relationship.”

The coaches generally advised having minimum requirements for other dedicated fields in profile pages, particularly location and smoking habits. However, they cautioned against “deal breakers” regarding other common fields in profile pages for demographic traits like income, religion, and political affiliation, which users answer with multiple choice lists. They explained that these trait fields give poor insight into lifestyle choices and values related to them, yet they said users still tend to extrapolate larger ideas of a person’s lifestyle from these multiple choice answers. Several coaches recounted stories of clients reacting negatively to profile pages with dissimilar answers largely because of imagined conflicts regarding their lifestyles and values. For example, coach 15 recounted how a female client disqualified any man who did not select “Jewish” in the religion field of his profile because she assumed the man would not want to raise his children as Jewish.

Coach 15: *“She said ‘well it’s really because I want to raise my kids Jewish.’ Then it’s like well as long as they agree to raise your kids Jewish, [their religion] is not actually a core requirement.”*

Interestingly, some of the coaches for casual sexual encounters gave the opposite advice regarding evaluation of multiple-choice fields in profiles. These coaches advised expediting the profile evaluation process by inferring openness to casual sex through answers provided in the dedicated fields for smoking and drinking habits—an inference they claimed to have validated in their personal experience using online dating systems (coach 5, on *OkCupid*’s trait field for smoking habits: *“If she smokes, she pokes”*). They explained that such inferences are necessary for online dater evaluation because female users seldom explicate openness to casual sex in their profile pages.

9.5.3.3 Open-Ended Text Fields in Profile Pages. Most profile page designs include open-ended text sections in which users can type at least 500 characters of free-text. In terms of online dater evaluation, several of the coaches advised scanning open-ended content for signals of incompatible relationship goals. Several coaches that helped women find long-term relationships referenced *“red flags”* in written content that signaled men’s casual sex motives. Some coaches also advised male clients with a long-term relationship interest to scan for red flags of *“gold diggers,”* or women desiring a relationship with a wealthy man for financial support.

Coach 13: *“I spend half my day creeping dudes’ [profiles for my clients]. Like one yesterday, he said something in the last paragraph [of his free-text content] about how ‘I’m a great snuggler.’ I’m like what the fuck. He’s already red flagged.”*

While some coaches said indications of personality could potentially be derived from anecdotes written in these open-ended text sections, they considered such signals to be inconsistently available and usually an inaccurate indication of how a person would behave in the physical world. They commonly attributed this to deliberate expression of personality being unintuitive through the written word, thus making such expressions hard to interpret (coach 30: “*what does ‘work hard, play hard’ even mean?*”).

Despite beliefs that free-text content provides signals of personality that are highly subject to misinterpretation, most of the coaches strongly advocated the use of free-text content for men to self-present personality. Several coaches for both relationship goals advised male clients to use free-text fields to convey attractive or “alpha male” (coach 3) personality traits through a tactic called “show, don’t tell”—a term also used in prior qualitative research regarding self-presentation in profile page [80]. Like in this prior work, the coaches discussed writing stories in profile pages to showcase or exemplify personality. Yet while users in prior work used the “show, don’t tell” method to reinforce the reliability of truthful identity claims, some of the coaches promoted its use for the opposite reason—to tell fabricated stories that embody desired personality traits. Some of these coaches provided fabricated stories to clients, while a few suggested that clients coopt quotes from TV shows or movies that exemplify desired traits. Some of these coaches rationalized the use of fabricated stories by stating that potential partners should know that such content is “obviously” false and that understanding it to be a fabrication is part of the intended self-presentation.

Coach 32: *“Some of the things we have in our [clients’] profiles is ‘I’m a lion tamer.’ Things that are obviously not true. [It’s supposed to show that] he has a sense of humor.”*

Coaches that promoted honest portrayals of personality through the “show, don’t tell” method expressed frustration with conveying the complexities of personality through text because clients struggled to recall true stories that clearly exemplified particular traits, not to mention the writing skills required to convey such stories concisely. As such, the objective of the “show, don’t tell” method promoted by these coaches was to write simplified, but true stories that advertise rudimentary versions of traits that are in line with one’s “*personal brand*” (coach 32)—the traits that clients believe they possess and that they want potential partners to know about.

Coach 25: *“I have read thousands of profiles and I know 99% of people write the same thing. So how does one differentiate oneself from the crowd? I don’t allow my clients to write adjectives. They’re not allowed to write that they’re smart or intelligent. They have to write a story, like a 4- or 5-line story, whose underlying message is the adjective they’re not allowed to say.”*

For female clients, the coaches advocated a different approach to self-presentation through free-text content. Several of the coaches perceived free-text content as an opportunity for women to “bait” prospective partners into messaging them by implying conversation topics that men can mention during their introductory messages. These coaches believed that male users typically struggle to think of content to include in their introductory messages, hence by incorporating potential messaging topics into the free-text portions of their profile pages women can increase the chances of a man sending

them a message. It should be noted, however, that no coach thought free-text content could ever supersede physical attractiveness; messaging “bait” would be trivial to self-presentation if a potential partner was not first physically attracted to the woman’s pictures.

Coach 13, while describing the mindset of a potential suitor for his female clients: “If I see ‘live, laugh, love’ [as free-text content] how am I going to start a conversation with that? [...] Give me more avenues to start a conversation. [For example,] ‘I can’t wait to go to [Martha’s] Vineyard and wear white pants and a pink shirt and dress up like a douche.’ There are so many avenues you can start a conversation with there.”

9.5.3.4 Text-Based Messaging. The coaches almost unanimously advised minimizing online interaction through text-based messaging. They urged their clients not to factor messaging interactions (the general enjoyment of interactions, as well as traits signaled through messaging content) into their in-person meeting decisions.

This mostly stemmed from a belief that users over-deliberate their message content, which would distort any signals of unobservable traits and reduce the chances that enjoyment from messaging conversations consisting of over-deliberated dialogue would give indications of enjoyment of subsequent face-to-face interactions.

Coaches advised use of text-based messaging primarily as a tool for organizing and moving to an in-person date quickly and using face-to-face interaction to do a bulk of their evaluation. Some coaches advised exchanging a maximum number of messages, usually 3-5, and disqualifying potential partners who were not receptive to meeting in-person within that span.

Coach 11: *“I tend to take the messaging not super seriously. Meaning you can’t evaluate a potential partner through the messaging. [...] Every two or three interchanges, you know three from each person—meet each other. You can’t create a relationship solely online. People email for too long.”*

The goal of self-presentation through text-based messaging according to most coaches was to persuade potential partners to accommodate their minimal evaluation strategy and meet in-person quickly without expending much time and effort.

Coaches for male users pursuing casual sex advised an approach to text-based messaging reminiscent of an assembly line: using fully copy-and-pasted message content that is conveyed through automated, mass-messaging techniques. The coaches for casual sexual encounters tested and refined the message content that they advocated to their clients by mass-messaging hundreds of women and documenting response rates for each message. For example, Coach 1 described paying a man in Africa \$3 an hour to conduct all of his messaging conversations with prewritten content, while Coach 5 developed (and sells) software that automatically sends messages to female users. Similar software is sold to clients, and the coaches also advised clients to develop their own methods for automating the messaging process.

Coach 5: *“I simply repeat the same phrases and actions [in my messages to women] over and over again. I’ve created several [programming] scripts so I don’t even have to type these things. This is not copy-paste. This is one click.”*

Coach 14: *“You have prebuilt messages and then you rotate them and see what works best. Basically the key to it is, yeah, you come up with strong copy-and-paste material and you track it to see what’s working and what’s not.”*

Coaches for casual sexual encounters sold their generic message content to male clients so that they could copy-and-paste it into their own messages verbatim. The generic message content shown to the interviewer was usually devoid of factual information and in some ways conveyed seemingly undesirable personality traits like rudeness or insecurity. Some examples of this messaging content:

Coach 4: “*You have no idea how many fat chicks I had to reject to get to you.*”

Coach 14: “*I know I’m not as experienced as most guys my age haha. I guess that makes me a dork.*”

As corroborated by other studies, these coaches explained that female users typically receive many messages from potential suitors, making them overly selective in which messages they respond to. As such, the objective of this copy-and-pasted message content was to stand out from competing male users and draw an emotional reaction from females of interest.

Most coaches for long-term relationship pursuits advocated a similar approach to messaging in the form of message templates that combine copy-and-pasted and personalized content. The copy-and-pasted portions were intended to convey attractive personality traits, much in the same vein as the “show, don’t tell” stories in profile pages. Ironically, adding a personalized portion to the message was intended to assuage suspicions of copy-and-pasted content. These coaches said the personalized portions should mention perceived commonalities with the respective user, or reference interesting elements of their profile as proof that they read the profile.

Coach 12: *“We have a bunch of templates. We provide them with nine different templates – this is what we used, this is how you can modify them for your own use. We give them the tools and they decide.”*

Coach 16: *“If you have [copy-and-pasted message content] that works well, use it to get attention, then scan the profile for 30 seconds then come up with a simple question based on a commonality that we both have to show that I am reading the profile and I’m paying attention to her.”*

Coaches for both relationship goals noted that response rates for replicable message content were usually low. For example, Coach 5 discussed employing the mass-messaging strategy personally to pursue his casual sex desires and explained that his messages typically receive 7-20 responses per 100 messages, of which 2-3 may lead to an in-person meeting. Yet replicable message content was considered a time management strategy that allowed one to message more users and procure a response for *any* user, not a strategy to guarantee a response from a particular user of interest. Most coaches did not advise “holding out hope” (coach 19) for potential partners that one is particularly interested in, and they did not offer strategies for increasing the likelihood of a particular user responding.

Coach 32, on time management: *“There’s a way that you can present a quality message without spending a whole lot of time. That’s my way of writing a message, 3-4 sentences max. You introduce yourself, you find something in common that shows you read their profile, and you end with a question. That gives you time to write to many people.”*

Coach 34: *“It’s dangerous to get fixated on one [user of interest]. The chances of them liking you back are pretty low, and if they’re popular they won’t even notice you. You*

shouldn't already be choosing a partner before you even move it offline. Expand your horizons."

Many of the coaches believed text-based messages were largely irrelevant to their female clients' self-presentation strategies because they said male users usually make decisions to meet in-person based on the profile page alone. Yet most advised women to send the first message to men that they were interested in as a way to ensure that their profile page was discovered.

9.6 Discussion

In this study, 34 online dating coaches were interviewed about the online dating system-use strategies that they consider will aid their clients in successfully achieving their relationship goals. The system-use strategies that they considered successful aimed to intentionally minimize online evaluation and persuade potential partners to meet in-person with minimal effort. Their notion of successful online dating system-use entails a user being able to procure in-person dates quickly with any potential partners that pass minimal attraction criteria. This definition of online dating system-use success noticeably precludes the outcome of in-person dates, which many of the coaches expected not to consistently result in a second date or otherwise lead to relationship goal achievement. This section seeks to discuss why the coaches advocated deliberately minimal online dater evaluation, and what aspects of system design should be addressed to improve success of online dating system-use.

9.6.1 The Costs and Benefits of the Coaches' Strategies

In general, the online dating system-use strategies recommended by the coaches revolve around “lean” evaluation; i.e., intentionally limiting the intensity of online evaluation and using scalable messaging tactics to persuade potential partners to meet in-person quickly at which time a more extensive evaluation can be conducted. The utility of these strategies can be explored through the lens of theories that have been traditionally applied to attraction research.

The one trait that coaches strongly advocated basing online dater evaluations on was physical attractiveness through profile pictures. This is in line with extensive research in evolutionary theory that frames physical appearance as a prime influence on attraction because it was trusted by our ancestors as a reliable indicator of genetic quality [30].

Beyond pictures however, the coaches saw minimal value in other content conveyed through online dating systems for evaluation of potential romantic partners. From the perspective of behavioral theory and attribution theory, this strategy makes sense. Both theories position face-to-face interaction as the primary determinant of decisions to continue evaluation of (potential) romantic partners. From the viewpoint of behavioral theory, decisions to continue evaluation are informed by the reward value or enjoyment derived from interactions with the potential partner. Attribution theory posits a mechanism for how interaction informs these decisions—a partner’s behavior and dialogue during face-to-face interaction signal a variety of attraction-relevant traits, many of which broadly comprise personality.

As Reis and colleagues say about face-to-face interaction, “What makes live interaction special? [...] Several features stand out: [...] interpreting and responding in real-time to each other’s behavior and verbalizations, [and] forming trait inferences from the other’s statements and behaviors” [182]. It thus makes sense that online dating coaches would want their clients to minimize time spent in subpar contexts for potential romantic partner evaluation (e.g., reading profile pages, engaging in messaging interactions) and move to the most important and informative context or setting for evaluation (face-to-face interaction) as soon as possible.

The merit of the coaches’ “lean” evaluation strategy is further reinforced through the lens of social exchange theory. Social exchange theory has been applied to romantic attraction and relationship stability research to explain why people decide to pursue a potential romantic partner or maintain a relationship with an existing partner [114,123]. Under social exchange theory, these decisions are the result of a cost-benefit analysis. If the perceived costs outweigh the perceived benefits, pursuit or maintenance of a relationship is discontinued. From the coaches’ perspective, their “lean” online dater evaluation strategy engineers the benefits of pursuing a potential partner to almost always outweigh the costs. To put their strategy in perspective, let us first conduct a cost-benefit analysis of pursuing a potential partner with a “typical” online dater evaluation strategy in which a user tries to derive as much information as they can from profile pages and messaging interactions with fully customized message content. The costs of pursuing a potential partner under this strategy would presumably be the time spent reading through profiles and conducting messaging conversations with custom content, as well as the opportunity cost of the users one would not be able to discover or evaluate. In return for

these costs, a user leveraging this strategy would be better informed about the perceived benefits of devoting additional time and resources for an in-person meeting with a potential partner.

The coaches believed the costs associated with a more intensive online dater evaluation strategy would not yield better-informed perceptions of the benefits of meeting a particular user in-person. This is because the coaches considered online information about potential partners to be highly susceptible to deception and misinterpretation. As such, the coaches' considered the chances of miscalculating the perceived benefits of meeting in-person to be high regardless of the effort put into online dater evaluation. By reducing the intensity of profile page reading and by largely automating messaging interactions with mass-messaging tactics, the coaches' strategy therefore reduced the costs of evaluation (time, opportunity costs) without reducing (the already scarce) benefits.

Interestingly, most coaches seemed oblivious to the costs involved with in-person meetings: getting dressed, traveling to the meeting location, devoting at least an hour to the date, spending money on a drink, and so on. The compounding cost of these in-person meetings theoretically limits the number of users one can evaluate more extensively. Even if a user goes on an in-person meeting every day, that is only seven users that they can evaluate in a week, which is a sobering number compared to how many users they can discover in an online dating system. Yet this is a best-case scenario; to assume that a user can procure a date every night of the week using the coaches' strategy may be farfetched. However, if a user can procure one or two dates a week based on one or two hours of mass-messaging effort, the coaches' strategy seems enticing.

But for how long would this strategy be effective? The coaches' mass-messaging tactic is only effective if most users are not employing it. And as online dating continues to increase in popularity and acceptance, users may become more willing to meet each other in-person faster. Here lies a bottleneck: while users can expedite online evaluation by simply choosing to meet users based on minimal information, it is less possible to expedite in-person meetings and reduce the costs surrounding those meetings. The high costs of in-person meetings would compound as users procure more dates using the coaches' strategy. Thus the strategy of minimizing user evaluation online to meet in-person quickly is ultimately not scalable. Instead one could consider designing online dating systems to better facilitate online dater evaluation so users can make more informed decisions about unavoidably costly in-person meetings.

9.6.2 Role of System Design in the Coaches' Online Dater Evaluation Strategy

The online dating coaches advocated minimal or lean online dater evaluation because they considered system design to stifle users' abilities to reliably evaluate potential romantic partners. This perception of unreliability was most apparent with messaging interfaces, which the coaches framed as purely a tool for quickly arranging in-person meetings.

The online dating coaches largely disregarded messaging interaction as an opportunity for evaluation or as a key decision point for in-person meeting decisions. This was due to suspicions that users are preoccupied with furthering an attractive self-presentation through messaging—a suspicion supported by prior work investigating online daters' messaging strategies [240] and also by findings from the first study of this dissertation.

Perhaps ironically, the coaches' automated and copy-and-paste strategies for text-based messaging emphasize the same motive that they suspect in other users. So while text-based messaging represents an opportunity to glean reliable signals of personality compatibility, self-presentation motives dissuade use of messaging in ways conducive to these benefits. The detrimental effect of these self-presentation motives on evaluation is likely exacerbated by the limited richness of messages and resultant hyperpersonal effect (the tendency to make overly favorable impressions during text-based communication as a result of missing or ambiguous information [221]).

9.7 Limitations

A notable limitation of this study is that not all of the online dating coaches were users themselves, and much of the validation of their online dater evaluation strategies was reported to them by clients enacting these strategies. This means that the coaches were not always able to personally verify the evaluation outcomes of their advocated strategies. Their clients may have implemented their advocated strategies in different ways—such as with varying criteria for what qualifies a potential partner for an in-person meeting—leaving the coaches unsure what other factors may have influenced evaluation outcomes for their users.

And like study 1 in this dissertation, studies of online dater evaluation outcomes in retrospect can only assess true positives and false positives. True and false negatives (resulting from decisions *not* to extend online dater evaluation to an in-person meeting) cannot be validated because users would have no opportunity to learn if their online evaluations were supported in-person. As such, users do not know if they are

disqualifying potential partners that would have otherwise been found attractive in-person. While the likelihood of false negatives occurring through adoption of the coaches' strategy is low due to in-person meeting criteria being minimal, it still represents a limitation of this type of research approach when assessing the success of a particular online dating system-use strategy.

9.8 Summary

This chapter presented study 2 of the research plan, which entailed a qualitative exploration of the online dater evaluation strategies advocated by online dating coaches. While the study aimed to uncover online dater evaluation strategies that consistently yield successful in-person meeting decisions, findings showed that the online dating coaches do not expect such outcomes to result from use of their strategies. Rather, they considered the ability to make successful in-person meeting decisions to be fundamentally stifled in online dating systems, particularly through messaging interactions, due to assumed impression management motives of the broader user base.

In line with behavioral theory and attribution theory, the online dating coaches considered face-to-face interaction to be the only reliable mechanism or setting for evaluating potential romantic partners. The overarching online dating system-use strategy advocated by the coaches thus entailed minimizing evaluation of potential romantic partners online and persuading users who satisfy minimum attraction criteria (e.g., physical attractiveness) to meet face-to-face as quickly as possible. The costs of in-person meetings however—such as time and money—limit the scalability of this online dater evaluation strategy.

CHAPTER 10

CONSTRUCTING A RESEARCH ARTIFACT TO SUPPORT EVALUATION OF POTENTIAL ROMANTIC PARTNERS THROUGH INTERACTION ONLINE

10.1 Introduction

Through the lens of *research through design* (Zimmerman et al., 2007), this chapter proposes the construction of a research artifact to better support evaluation of potential romantic partners through interaction in online dating systems. Zimmerman and colleagues [237] introduced the concept of research through design to the field of HCI to describe how system design problems and research intersect. In this conceptualization, the process of framing a problem and then formulating and evaluating solutions to that problem in the form of an IT artifact is itself a research contribution.

10.2 The Importance of—and User Struggles with—Interaction through the Online Dater Evaluation Process

Interaction has historically been integral to evaluation of potential romantic partners. According to behavioral theory, decisions to continue pursuing or maintaining a romantic relationship with a respective partner are the result of an accumulation of enjoyable or “rewarding” interactions [20,90–92,123]. Attribution theory posits a mechanism for how interaction informs these decisions—a partner’s behavior and dialogue during interaction signal a variety of attraction-relevant, but otherwise unobservable, traits [19,21].

If enjoyment of interaction is a guiding force behind decisions to maintain evaluation of potential romantic partners, it is imperative that enjoyment of interactions remains consistent across modalities—interactions through messaging interfaces in online

dating systems and interactions during initial in-person meetings should be similarly enjoyable. If not, users may use enjoyable messaging interactions as a basis to go on in-person meetings that are ultimately unsuccessful (not culminating in mutual desire for a second meeting), which wastes users' finite time and resources, not to mention the effects of unsuccessful meetings on emotional wellbeing.

Findings from studies 1 and 2 indicate that there often is dissimilarity between enjoyment of messaging interaction and subsequent face-to-face interaction with potential romantic partners. The studies also provided reasons for this.

OkCupid users in study 1 approached messaging interactions as if they were an auditions, with some users (typically men) adopting the messaging interface to anxiously bid—or audition—for the sustained attention of potential partners, and other users (typically women) assuming the role of strict evaluator of these auditions—a director, so to speak—by probing message content for any reason to reject the respective user and shift focus to other interested suitors. These overt self-presenter and evaluator roles did little to encourage messaging interactions that would be indicative of face-to-face interactions (where the synchronous nature and duration of a face-to-face meeting would make pre-meditated dialogue untenable, and hasty abandonment of a date after a lull in conversation impractical and rude).

The online dating coaches in study 2 assumed that the broader user base possessed impression management motives akin to the “audition” roles discovered in study 1, and thus that the utility of messaging interactions for online dater evaluation was trivial. Their strategies for messaging entailed intentionally shortening interactions and relying on copy-and-pasted message content to procure in-person meetings quickly even

though they admitted the chances of these first dates yielding a second date were low because online evaluation was intentionally attenuated.

In order to understand how interaction interfaces in online dating systems could be better designed, we need to dissect the aspects of interaction conducive to potential romantic partner evaluation that do not translate to interaction interfaces in online dating systems. From there, system design solutions can be posed to instill the missing beneficial aspects of interaction into online dating systems.

Following a research through design approach, the next two sections of this chapter leverage prior research about interaction to reflect on different design approaches for a research artifact intended to better support evaluation of potential romantic partners through interaction online. The chapter concludes with a series of design considerations informed by this reflection that will guide the creation of a research artifact to be assessed in the final study of the research plan.

10.3 Aspects of Face-to-Face Interaction that are Missing from Interaction Interfaces in Online Dating Systems

In this section aspects of interaction are explored that are missing in the typical interaction interfaces of online dating systems that may be crucial to yielding consistent enjoyment of interaction with potential romantic partners across modalities.

10.3.1 Media Richness

Attribution theory posits a mechanism for how interaction informs evaluations of potential romantic partners. Specifically, a potential partner's behavior and dialogue during interaction signal a variety of attraction-relevant, but otherwise unobservable,

traits [19,21]. Most work grounded in attribution theory has studied face-to-face interaction. As Reis and colleagues explain the benefits of face-to-face interaction, “What makes live interaction special? [...] Several features stand out: [...] interpreting and responding in real-time to each other’s behavior and verbalizations, [and] forming trait inferences from the other’s statements and behaviors” [182] (p. 576). This description highlights media richness [39] as an aspect of interaction conducive to attraction-relevant trait signaling.

According to media richness theory [39], the richness of an interaction medium is reflective of the complexity of information that can be transmitted over it. Face-to-face interaction has high media richness because of its multiple channels of communication (“behavior and verbalizations” in addition to the mere words being expressed) and synchronous nature of communication (“responding in real-time...”) [182]. The nonverbal cues that one gives off during face-to-face interaction, beyond just the words they are saying, allow opportunities for complex trait signals to be expressed (e.g., a sarcastic tone or shyness in one’s voice).

Text-based messaging interfaces typical in online dating systems have low media richness because of their sole reliance on text as a form of communication media and asynchronous nature of communication. The asynchronous nature of text-based messaging interactions means that communication partners can respond at any time they want, thus allowing them to over-deliberate the content of their responses, which may result in message content not reflective of their natural inclinations for response during face-to-face interaction. The sole reliance on text as a form of communication media may also be problematic to online dater evaluation because work regarding the hyperpersonal

model [221] suggests that people “fill in the gaps” from missing richer information like nonverbal cues and behavior with their own mental schemas to assume what unobservable traits may be implied behind the text conveyed in messages. These assumptions can yield expectations about a potential romantic partner that are violated in a richer, face-to-face setting.

10.3.2 Assigned Topics of Conversation

Messaging interfaces typical in online dating systems are unprompted or open, meaning users can discuss whatever topics they want. Research suggests that the conversation topics discussed during interaction may be pertinent to romantic partner evaluation. For example, research rooted in behavioral theory indicates that adaptive processes or problem-solving discussions are a type of conversation topic conducive to expression of each partner’s “enduring strengths and vulnerabilities,” which constitute the variety of traits and past experiences that influence how they behave during interaction [123]. These are discussions in which partners contend with differences of opinion to reach consensus on a particular topic (see Chapter 3 for a review).

Such studies found that enjoyment or positive “impact” of problem-solving discussions predicts romantic relationship satisfaction at the current and future points in time [158,159]. The VSA model [123] poses an explanation for why problem-solving discussions predict romantic relationship satisfaction that is reminiscent of attribution theory. According to the VSA model, each partner’s “enduring strengths and vulnerabilities” (e.g., personalities) are manifested through behavior expressed while addressing the problem or task with one’s partner. Tension, arguments, or struggles to work together during problem-solving discussions—deemed “punishing or negative

behaviors” [123] (p. 5)—may signal a clash of “enduring strengths and vulnerabilities” and lead to negative evaluations of the (potential) romantic partner. On the contrary, pleasant experiences during problem-solving interactions (what Karney and Bradbury call “rewarding or positive behaviors”) may signal cohesion of “enduring strengths and vulnerabilities” and yield positive evaluations of the partner.

Since online dating systems typically do not assign conversation topics in their interaction interfaces, users may choose topics not particularly conducive to expression of their underlying “strengths and vulnerabilities” that would become more apparent during subsequent face-to-face interactions.

10.4 Design Choices for the Research Artifact

Prior research suggests that media richness and topics of conversation are important factors that contribute to interaction being able to facilitate online dater evaluation. In this section we deliberate richer interaction interfaces and prompted text-based messaging interfaces as two different design choices for a research artifact to better facilitate interactions in online dating systems that are similarly enjoyable to subsequent face-to-face interactions.

10.4.1 Richer Interaction Interfaces

According to media richness theory (MRT), text-based messaging has low media richness because of its restricted ability to facilitate transmission of complex signals [39]. This low media richness contributes to the hyperpersonal effect [221], which predisposes users to developing idealized impressions of communication partners. One way to improve

evaluation through interaction in online dating systems could be to provide richer interaction interfaces such as voice chat or video chat [41]. These interface components could better enable the transmission of visual and audible signals through users' body movements and speech patterns, which would better simulate in-person interaction than text-based messaging. Research has indicated that online dating system users already use phone calls as part of their uncertainty reduction strategies [81], and incorporating richer interaction interfaces within online dating systems would lessen the privacy implications of using richer interfaces outside of online dating systems.

However, online dating systems with voice and video chat interface components have been released in the market before with little success. As recalled from *OkCupid* users in study 1, some of them expressed hesitance to use video chat services because of a privacy trade-off. They explained that while they would appreciate having video of their potential partners, they would be reluctant to let potential partners see video of them. This speaks to a threshold of comfort that users require when using richer communication media. If users are not already willing to meet a potential partner in-person, they may not be willing to engage with richer communication media either. This essentially defeats the purpose of richer interaction interfaces for online dater evaluation: they cannot be used to help inform in-person meeting decisions if users are uncomfortable using them before making the decision to meet in-person.

10.4.2 Messaging Interfaces that Prompt Users with Conversation Topics

In most text-based messaging interfaces in online dating systems, interactions are unstructured or open—users can discuss whatever they want, and the chosen topics and related message content may not be particularly indicative of future face-to-face

interactions. Given the “relationshopping” mentality that dominates evaluations of profile pages [107] and the approaches to text-based messaging discovered in the first two studies of this dissertation, it is unlikely that users will voluntarily choose topics or contexts of interaction that are most conducive to expression of their “enduring strengths and vulnerabilities,” some of which may decrease their attractiveness in the eyes of a potential romantic partner. Interaction interfaces could be designed to promote such contexts or topics to users.

Prior research indicates that problem-solving discussions—in which two communication partners deliberate differences in opinion regarding a topic—could be one such context [119,158,159]. These are discussions in which two communication partners deliberate differences in opinion to reach consensus on a topic.

Online dating systems could be designed to promote or prompt problem-solving discussions amongst users when they begin text-based messaging conversations with potential partners. This approach does not bring with it the privacy issues of richer media, so users will likely be more willing to engage in prompted text-based messaging interactions than richer interactions, especially with potential partners they are not yet familiar with. However, the two completed studies in this research plan suggest some reasons why prompted messaging interfaces may not work as intended in online dating systems. For example, users may simply ignore the prompted topics and choose topics they think are more conducive to their overt self-presenter or evaluator efforts. They may also simply agree with their communication partner by default to avoid arguments that may negatively affect how they are evaluated.

In the next section design considerations are provided that acknowledge user tendencies reported in the completed interview studies that may impede the benefits of prompted messaging interfaces for online dater evaluation.

10.5 Design Considerations for Messaging Interfaces Prompted with Problem-Solving Topics

The previous section described how messaging interfaces prompted with problem-solving topics may be a more appropriate design choice than richer interaction interfaces for supporting evaluation of potential romantic partners through interaction in online dating systems. Leveraging insight from studies 1 and 2 of this dissertation and prior work regarding problem-solving discussion, this section reviews and provides design considerations for user tendencies that may impede messaging interfaces prompted around problem-solving discussion from yielding interactions that are similarly enjoyable to subsequent face-to-face interactions.

10.6 Design Considerations Informed By Study 1

10.6.1 Provide Problem-Solving Discussion Topics at the Beginning of Text-Based Messaging Interaction

OkCupid users in study 1 let their overt self-presentation or evaluation motives steer the direction of their text-based conversations as soon as they began. For example, male participants were unsure how to start conversations in ways that would maintain the attention of potential partners, which led them to over-deliberate and randomly change the content of their introductory messages to maximize their attractiveness and chances of

a response. And female participants admitted that the conversation topics of introductory messages (e.g., overt sexual advancements) and general allure of these messages did weigh heavily on their decisions to respond.

This suggests that online dating systems should prompt users with problem-solving topics at the very beginning of text-based messaging conversations, before either has sent an introductory message. This would alleviate male users from over-deliberating what to say in their introductory messages and potentially choosing a topic that recipients deem unappealing or uninformative for evaluations.

10.6.2 Ensure a Split of Opinion Prior to the Text-Based Messaging Interaction

What if two users say they do not disagree on the problem-solving topic provided to them? Would they automatically reach consensus and then regress back to their staunch “audition” roles? One way to avoid this is to ensure a split of opinion prior to the text-based messaging conversation beginning, such as by procuring users’ opinions about a series of problem-solving discussion topics before they discover or otherwise interact with a respective potential partner in the online dating system.

This principle of ensuring a conflict of opinion was similarly emphasized in a series of problem-solving discussion topics called the inventory of marital conflicts (IMC), which was leveraged in prior studies with married couples [174]. The IMC contained a series of short vignettes about common marital conflicts that required couples to reach consensus regarding which hypothetical partner was at fault for the conflict depicted in the vignette (e.g., “husband’s forgetfulness about throwing out the trash”). Studies implementing the IMC ensured a conflict of opinion by giving relationship

partners slightly different versions of the vignette that biased them towards blaming a different hypothetical partner before engaging in discussion.

10.7 Design Considerations Informed By Study 2

10.7.1 Promote Conversation Topics that are Personally Relevant: First-Date Conflict Stories

The online dating coaches in study 2 were pessimistic about putting considerable effort into messaging interactions due to preconceived biases against the benefits of any online dater evaluation through text-based messaging. Given the online dating coaches' predisposition for copy-and-pasted message content, it seems a paramount concern that users may simply ignore the problem-solving topics provided to them or hastily produce messages so they can shift the messaging interaction towards topics more conducive to quickly arranging in-person meetings.

This emphasizes the need for problem-solving discussion topics that are personally relevant to online dating system users in order to encourage them to become actively engaged in debating true conflicts of opinion. In other words, online dating systems should provide problem-solving discussion topics that users actually want to talk about.

This same concern of active engagement in conversation was emphasized in prior research studying problem-solving discussions with long-term romantic couples. Gottman and colleagues [119] categorized problem-solving discussion topics applying to romantic couples as either low-conflict or high-conflict. Low-conflict topics were generic tasks with no personal relevance to participating couples, such as "rank-ordering 15 items

for their survival value for a life-and-death trip to the moon” or rank-ordering 10 foods according to their nutritional value [119] (p. 17). High-conflict topics included conflicts that couples personally encountered in their relationships, such as when to have a baby or “the wife’s lateness to dinner engagements” [174] (p. 446). Gottman and colleagues [119] found low-conflict discussions a less reliable indicator of relationship satisfaction in couples than high-conflict topics, presumably because the respective topics were not personally relevant and thus did not incite active involvement from couples.

How may online dating systems determine topics likely to incite active involvement from users? Prior problem-solving discussion research with romantic couples did this in two ways. The first was by directly asking participating couples what problems they were encountering in their relationships, e.g., [87,158]. This strategy cannot translate to online dating systems because users are not already in relationships from which they could derive problems. They may also be uncomfortable citing issues that they encountered in previous relationships, and it would be farfetched to expect them to predict issues that they may encounter in future relationships. The second way that prior research procured active involvement was by implementing the IMC, which included vignettes, or short stories, depicting common marital conflicts [174]. In studies adopting the IMC, romantic couples read a series of these vignettes and then had to come to an agreement about which partner in the hypothetical story was most at fault for the conflict. While participating couples did not create these vignettes themselves, they discovered that many reflected issues they had personally encountered in their relationships. As Olsen and Ryder describe: “When asked how involved they felt when discussing problems similar to those [they] have encountered, 81 percent said they felt

either somewhat or very involved. Conversely, only 15 percent felt very involved when discussing the cases which were not similar to their own” [174] (p. 446). Because of this active involvement, “numerous couples also stated that the procedure elicited a good sample of their behavior outside the experimental setting” [174] (p. 446).

Vignettes of marital conflicts may not be germane to users of online dating systems because they are presumably not married, and many of them have presumably never been married. Vignettes or short stories of common conflicts that arise during first dates (e.g., “who should pay for dinner on the first date?”) likely would be more personally relevant to online daters because first dates/in-person meetings are an integral part of the online dater evaluation process. The term “first-date conflict story” will be used on subsequent pages to describing discussion topics regarding conflicts that occur on or concern first dates between potential romantic partners.

10.7.2 Promote Conversation Topics That Do Not have Obvious Socially Desirable Answers

In the design principles for study 1, it was discussed how online dating systems should procure users’ opinions on problem-solving discussion topics before they discover or engage in interaction with a respective potential partner. This is to prevent users from immediately agreeing with their potential partner so they can avoid the conversation and move to topics that they think are more conducive to impression management. However, even if users do not know which particular potential partners they will discuss respective topics with, they may still be tempted to simply select answers that would be most beneficial to an attractive self-presentation. In other words, users would likely not give honest opinions regarding discussion topics that have universally preferred or politically

correct choices. A way to remedy this self-presentation motive would be to provide discussion topics that do not have obvious socially desirable answers.

10.8 Design Mockup of a Messaging Interface Prompted with Problem-Solving Discussion Topics

This section provides a mockup of a messaging interface for online dating systems that prompts users to discuss a problem-solving discussion topic. The mockup reflects the design considerations derived from studies 1 and 2 in this dissertation, and are indicated in the mockup.

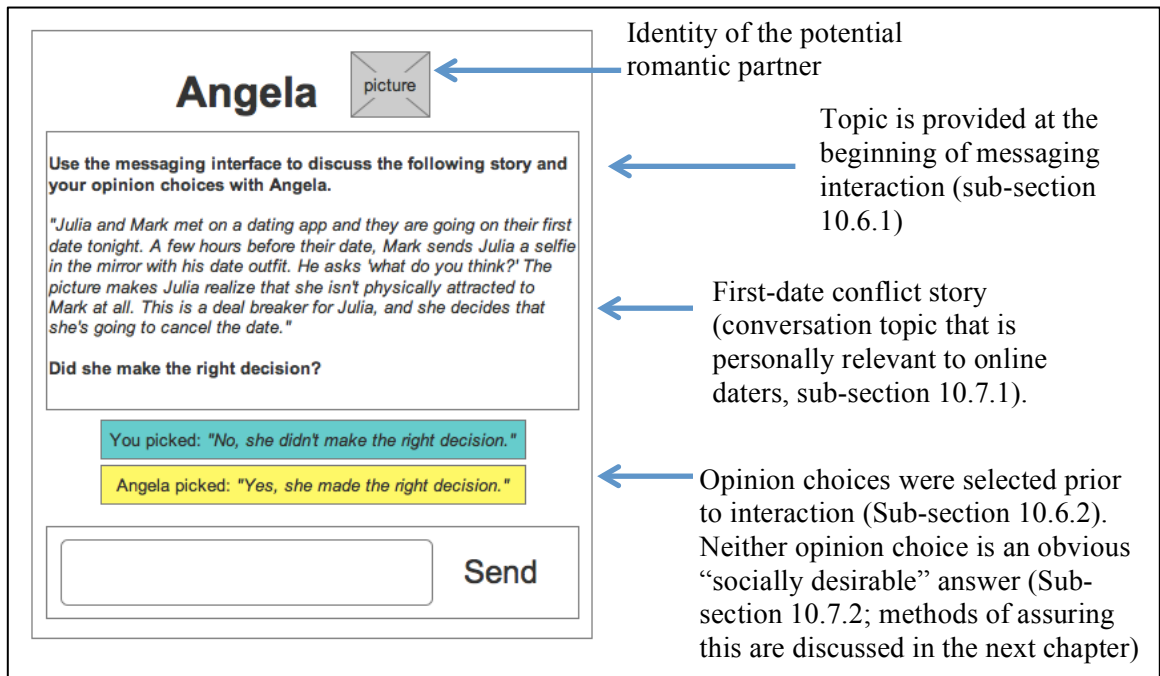


Figure 10.1 A mockup for a messaging interface prompted with a problem-solving discussion topic for online dating systems. The mockup is from the perspective of a male user who is about to interact with a female potential partner.

10.9 Summary

According to literature, enjoyment of interaction with a potential romantic partner is central to decisions to continue pursuing or maintaining a romantic relationship with them. If enjoyment of interaction is a guiding force behind decisions to maintain evaluation of potential romantic partners, it is imperative that enjoyment of interactions remains consistent across modalities—interactions through messaging interfaces in online dating systems and interactions during initial in-person meetings should be similarly enjoyable. Findings from studies 1 and 2 in this dissertation, however, indicate that there often is dissimilarity between enjoyment of messaging interaction and subsequent face-to-face interaction with potential romantic partners.

Following a research through design approach, this chapter reflected on potential system design solutions for a research artifact to improve evaluation of potential romantic partners through interaction in online dating systems. Richer interaction interfaces and messaging interfaces prompted with problem-solving discussion topics were posed as design choices. A prompted messaging interface was selected as the design focus for the research artifact due to likely privacy concerns over using richer interaction interfaces (e.g., voice and video) with potential partners that one is not already familiar with.

Problem-solving discussions—or conversations in which two partners contend with differences of opinion to reach consensus on a topic—was posed as a type of conversation prompt for the research artifact. Prior work from the 1970s has shown that problem-solving discussions amongst married couples can predict marital satisfaction at current and future times. Models resulting from this work posit that this predictive power is due to problem-solving discussions being a type of conversation topic conducive to

expression of each partner's "enduring strengths and vulnerabilities," which constitute the variety of traits and past experiences that influence how they behave during interaction. Conversation topics that better support expression of these traits may yield messaging interactions that are similarly enjoyable to interactions during in-person meetings where the richer, face-to-face context inherently supports signaling of a variety of attraction-relevant traits.

The chapter concluded by presenting design considerations for facilitating problem-solving discussion in a text-based messaging interface for online dating systems as informed by the completed studies. The next chapter discusses the final study of this dissertation, which entailed an assessment of the research artifact.

CHAPTER 11

STUDY 3: MIXED METHODS FIELD STUDY OF RESEARCH ARTIFACT (QUANTITATIVE COMPONENT)

11.1 Introduction

Given that enjoyment of interaction is a guiding force behind decisions to maintain evaluation of potential romantic partners [123,229], it is imperative for online dating system users that enjoyment of interactions with a potential romantic partner remains consistent across online and face-to-face modalities. Interactions through messaging interfaces in online dating systems and interactions during initial in-person meetings should be similarly enjoyable. If not, enjoyable messaging interactions may trigger users to desire in-person meetings that are ultimately unsuccessful (not culminating in mutual desire for a second meeting), which wastes users' finite time and resources, not to mention the effects that unsuccessful meetings can have on emotional wellbeing.

Online dating systems typically facilitate interaction between users with open messaging interfaces (i.e., interfaces that enable two users to discuss whatever topics they want). The prior studies in this dissertation revealed that interactions in such messaging interfaces seldom give users a good indication of whether they will enjoy subsequent face-to-face interaction with a potential romantic partner.

This frequent dissimilarity between enjoyment of messaging interaction and subsequent face-to-face interaction may stem from users employing open messaging interfaces primarily as a stage for "auditions," or systematic self-presentation strategies (e.g., prewritten message content that had previously yielded a desired response) and strict evaluation strategies (e.g., immediately disqualifying a user as a potential romantic

partner for one message deemed unsatisfactory). These messaging strategies appear to stifle opportunities for online interactions that would be similarly enjoyable to interactions during subsequent face-to-face meetings where the synchronous nature and duration of face-to-face interaction would make pre-meditated verbal content untenable, and hasty abandonment of a date after a lull in conversation impractical and rude.

How can interaction interfaces be designed to yield interactions within online dating systems that are similarly enjoyable to interactions during subsequent in-person meetings? A messaging interface that prompts users to engage in problem-solving discussions—or discussions in which two partners discuss a topic that they initially disagree on—was theorized in Chapter 10 as one system design solution because prior work suggests that problem-solving discussion topics serve as instigators of expression for the various traits and characteristics that influence one’s interaction patterns [123]. Chapter 10 detailed the construction of a research artifact that embodies this solution in the form of a messaging interface that prompts users to discuss a type of problem-solving discussion topic called first-date conflict stories (which depict scenarios on or concerning a first date and ask the reader to pick one of two opinion choices regarding the actions of one of the dater’s in the scenario).

Through a mixed methods field study, the messaging interface designed in Chapter 10 underwent quantitative and qualitative assessment. These studies involved “speed dating” events [62] in which real single daters gathered at a bar in Manhattan to be exposed to variations of a messaging interface and then meet potential romantic partners for face-to-face interactions.

Prior to face-to-face interactions at the bar, some daters provided quantitative data about the research artifact by using an online dating system accessible through laptops at the bar to evaluate potential romantic partners (ones they would later meet face-to-face) through variations of a messaging interface. At the same time while daters were using the online dating system, other daters at the bar provided qualitative data about the research artifact through focus groups that gauged their personal reactions to mockups depicting the same messaging interface variations.

This chapter reviews the messaging interface variations that were studied and then presents the quantitative component of the mixed methods field study. The qualitative component is presented in the next chapter.

11.2 Messaging Interface Variations

Daters were exposed to three different messaging interface variations in this study.

Open Messaging Interface: the messaging interface does not prompt users to discuss a particular topic. This resembles the “typical” interface in online dating systems today.

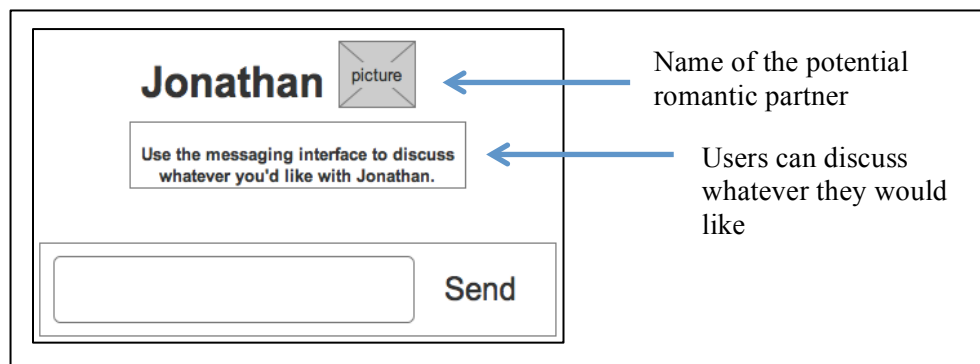


Figure 11.1 An example of the open messaging interface.

Prompted-Disagreement (Problem-Solving) Interface: two users are prompted to discuss a first-date conflict story that they initially *disagreed* on (picked different opinion choices). See Chapter 10 for a discussion of this interface design.

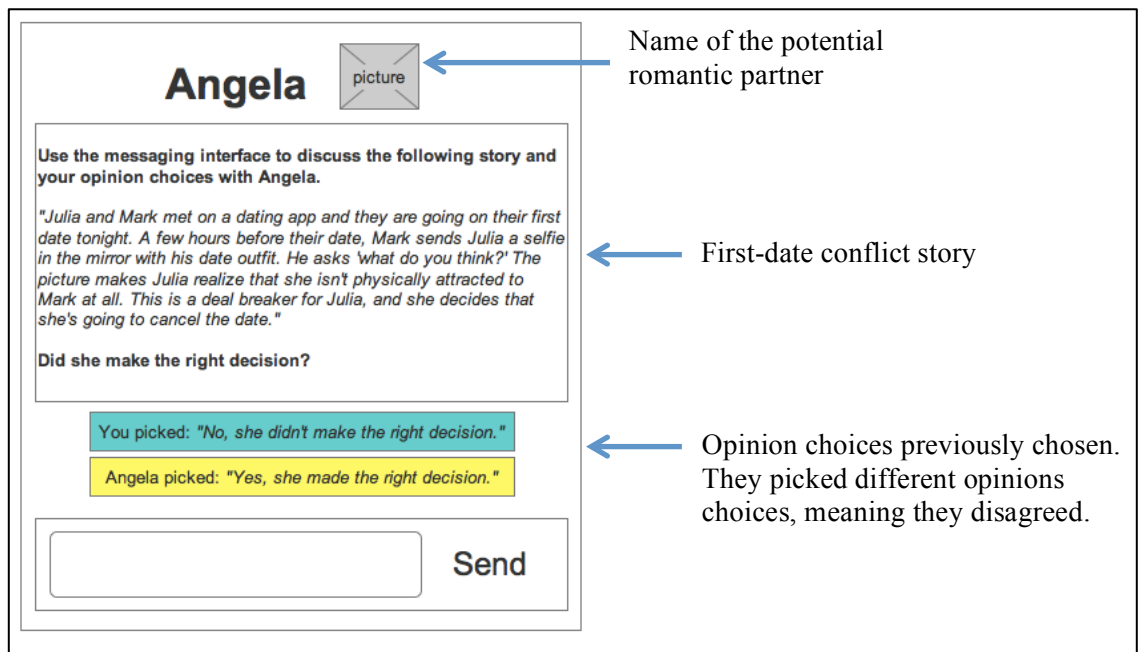


Figure 11.2 An example of the prompted-disagreement messaging interface.

Prompted-Agreement Interface: two users are prompted to discuss a first-date conflict story that they initially *agreed* on (picked the same opinion choice). The prompted-agreement interface was added to this study in order to differentiate the effects from prompting users to discuss a first-date conflict story (regardless of opinions to the story) and effects from prompting users to discuss a first-date conflict story that they specifically disagree on.

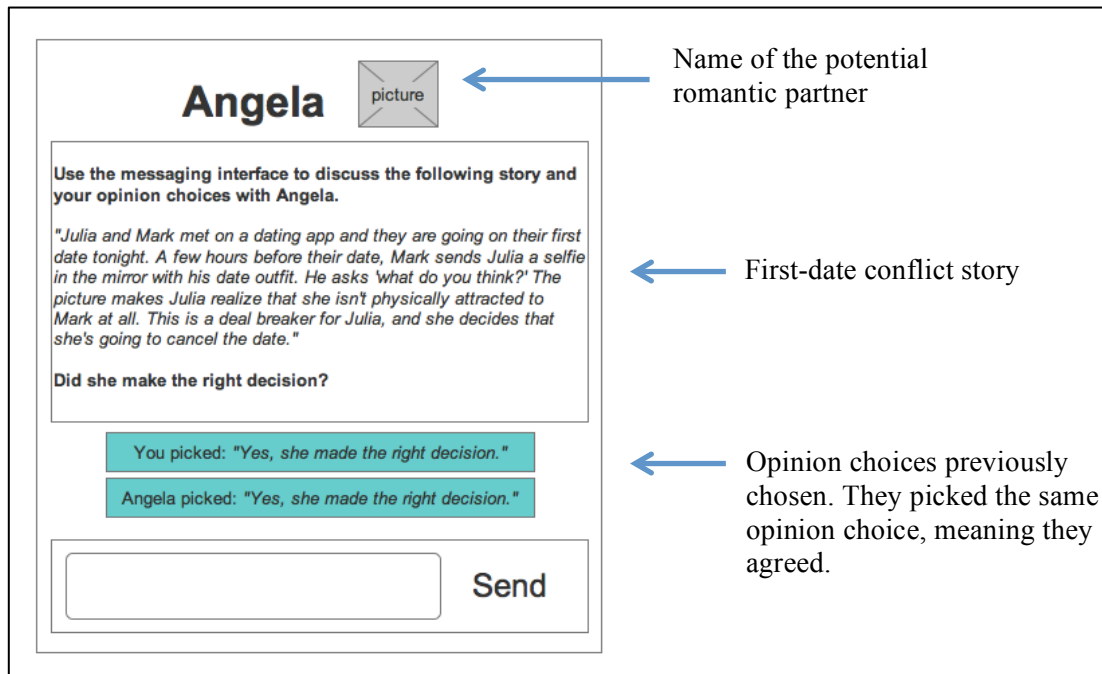


Figure 11.3 An example of the prompted-agreement messaging interface.

11.3 Hypotheses

In this section hypotheses for the quantitative component of the study are proposed.

11.3.1 Enjoyment of Interaction

According to behavioral theory, sustained evaluation of a potential romantic partner is the product of enjoyable or “rewarding” interactions with the partner, e.g., [123,158]. The premise of behavioral theory implies that prior/current interactions and future interactions with a potential romantic partner will be similarly rewarding. If online dating system users are dissatisfied with face-to-face interactions after having messaging interactions that were presumably enjoyable (otherwise why meet face-to-face?), then there must be a dissimilarity in enjoyment of messaging interaction and subsequent face-to-face interaction. As findings from studies 1 and 2 in this dissertation have indicated, online

dating system users (particularly women) often do find interaction with potential partners during initial in-person meetings to be unenjoyable despite previous (open) messaging interaction in the online dating system being enjoyable.

The more closely enjoyment of messaging interaction matches enjoyment of subsequent face-to-face interaction, the more likely users will make successful in-person meeting decisions (i.e., initial meetings that culminate in the desire for a second meeting). As such, the primary aspect of online dater evaluation that this study is interested in is how accurately enjoyment of messaging interaction predicts enjoyment of subsequent face-to-face interaction with a potential romantic partner.

It can be expected that enjoyment of messaging interactions through the prompted-disagreement interface will most accurately predict enjoyment of subsequent face-to-face interactions out of the three interface variations because, according to the literature, problem-solving discussions (or discussions in which two partners discuss a topic that they disagree on) serve as conduits of expression for a variety of attraction-relevant traits (called “*enduring strengths and vulnerabilities*” in the literature) [123]. Messaging interactions around such conversation topics that elucidate (in)compatibilities in potential partners’ “enduring strengths and vulnerabilities” should be similarly enjoyable to interactions during subsequent in-person meetings where the richer, face-to-face context and longer duration of such meetings inherently supports signaling of various attraction-relevant traits.

When imagining messaging interactions through the prompted-disagreement interface, a disagreement of opinion should incite users to probe deeper into the conversation topic, become more actively involved, and/or focus more on the

conversation to promote one's own opinion or understand the partner's opinion (e.g., "why did you pick that opinion choice?"). With the prompted-agreement interface however, users may not exhibit quite the same tendencies to probe deeply into a topic if they already agree on the prompted story (e.g., "what else is there to talk about?"). This may stifle signals of attraction-relevant traits relative to the prompted-disagreement interface. As such, the prompted-agreement interface should be second best—behind the prompted-disagreement interface—at producing messaging interactions that are similarly enjoyable to subsequent face-to-face interactions.

Enjoyment of interaction through either of the prompted interfaces should more accurately predict enjoyment of face-to-face interaction than the open messaging interface. This is because prompting users to discuss a particular conversation topic that they did not choose (regardless of opinion) may dissuade or obstruct overt self-presentation strategies that distort expectations of how a person will behave during face-to-face interaction (e.g., men's copy-and-pasted message content would not make sense in the context of a different conversation topic). Prompted discussions may also spur users to become more involved in the interaction and lose focus on making hasty decisions to disqualify a potential partner from evaluation if they find the discussion topics interesting and engaging.

Based on these expectations for the messaging interfaces, the first hypothesis states:

H1: Enjoyment of messaging interaction through the prompted-disagreement interface will most accurately predict enjoyment of subsequent face-to-face interaction with a respective potential romantic partner, followed by the prompted-agreement interface, and then followed by the open messaging interface.

(Difference in enjoyment of messaging and F-to-F interaction:

Prompted-disagreement < Prompted-agreement < Open messaging)

In addition, this hypothesis predicts that the messaging interfaces will individually differ from one another in the following ways. These are listed below as sub-hypotheses:

H1A: The prompted-disagreement interface will produce significantly smaller differences in enjoyment of messaging interactions and subsequent face-to-face interactions than the prompted-agreement interface.

(Difference in enjoyment of messaging and F-to-F interaction:

Prompted-disagreement < Prompted-agreement)

H1B: The prompted-disagreement interface will produce significantly smaller differences in enjoyment of messaging interactions and subsequent face-to-face interactions than the open messaging interface.

(Difference in enjoyment of messaging and F-to-F interaction:

Prompted-disagreement < Open messaging)

H1C: The prompted-agreement interface will produce significantly smaller differences in enjoyment of messaging interactions and subsequent face-to-face interactions than the open messaging interface.

(Difference in enjoyment of messaging and F-to-F interaction:

Prompted-agreement < Open messaging)

11.3.2 Desire for a Regular Date

The most costly decision in the online dater evaluation process is whether to meet a potential romantic partner face-to-face because such meetings take time, money, and can jeopardize one's emotional and physical well being if the meeting does not go well. Given that messaging interactions play an important role in decisions to meet a potential partner face-to-face, this is another aspect of online dater evaluation that this study explores.

It was shown in studies 1 and 2 that users who decided after a messaging interaction to meet a potential partner face-to-face often did not maintain a desire to meet for a second time. Several participants in those studies did not even consider the initial face-to-face meeting to be a "date" at all, but rather an opportunity to further evaluate a potential romantic partner and confirm that they wanted to go on a longer, more explicitly romantic "first date." Such initial meetings were often scheduled to be short and noncommittal (e.g., meet-up for coffee) in case they went poorly. Of course, users would not go on an initial face-to-face meeting if their online evaluation of the potential romantic partner did not lead them to believe there was a good chance they would desire a longer, explicitly romantic date.

If desire for a long, explicitly romantic date (or: “regular date”) after a messaging interaction better matched desire for such a date after an initial, short face-to-face interaction, users would make better decisions about who they should discontinue evaluation with online before expending their finite resources to meet face-to-face at all. Specifically, this study looks at the change in desire to go on an explicitly romantic date (or: “regular date”) after a messaging interaction and after a short, initial face-to-face interaction with the same potential romantic partner.

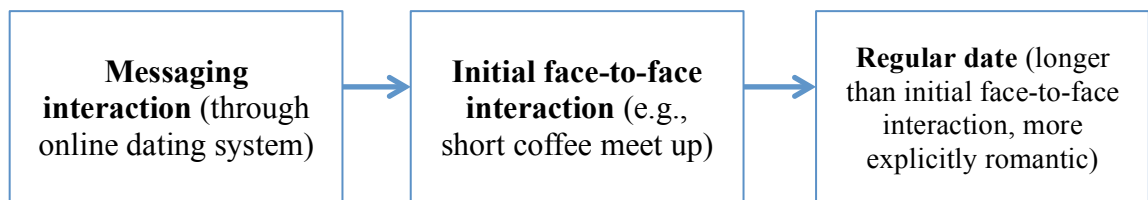


Figure 11.4 The progression of interactions an online dater has with a potential romantic partner. The figure illustrates the difference between an initial face-to-face interaction (which several participants in studies 1 and 2 considered not to be a “date”), and a “regular” first date. H2 explores the difference between desire for a “regular date” after the messaging interaction and after the initial face-to-face interaction.

Since enjoyment of interaction is a determining factor in decisions to continue evaluating a potential romantic partner (such as on a regular date), expectations for how the messaging interfaces will differ in regards to desire for a regular date mimic those for enjoyment of interaction in H1. Specifically, H2 states:

H2: Desire for a regular date after messaging interaction through the prompted-disagreement interface will most accurately predict desire for a regular date after an initial face-to-face interaction with a respective potential romantic partner, followed by the prompted-agreement interface, and then followed by the open messaging interface.

(Difference in desire for a date after messaging and F-to-F interaction: Prompted-disagreement < Prompted-agreement < Open messaging)

In addition, this hypothesis predicts that the messaging interfaces will individually differ from one another in the following ways. These are listed below as sub-hypotheses:

H2A: The prompted-disagreement interface will produce significantly smaller differences in desire to go on a regular date after a messaging interaction and after an initial face-to-face interaction than the prompted-agreement interface.

(Difference in desire for a date after messaging and F-to-F interaction: Prompted-disagreement < Prompted-agreement)

H2B: The prompted-disagreement interface will produce significantly smaller differences in desire to go on a regular date after a messaging interaction and after an initial face-to-face interaction than the open messaging interface.

(Difference in desire for a date after messaging and F-to-F interaction: Prompted-disagreement < Open messaging)

H2C: The prompted-agreement interface will produce significantly smaller differences in desire to go on a regular date after a messaging interaction and after an initial face-to-face interaction than the open messaging interface.

(Difference in desire for a date after messaging and F-to-F interaction:

Prompted-agreement < Open messaging)

11.3.3 Confidence in Desire for a Regular date after Messaging

The reason participants in studies 1 and 2 framed an initial face-to-face meeting as being distinctly different from a “regular date” was because they had little confidence in the evaluations they formed of potential romantic partners online. As such, confidence in desire for a regular date is a third variable that this study explores. If the prompted messaging interfaces yield the benefits to online dater evaluation as expected in Hypotheses 1 and 2, users may also feel more confident in their desires for a regular date after messaging interaction. As such, the third hypothesis states:

H3: The prompted-disagreement interface will produce the most confidence in desires for a regular date after messaging interactions, followed by the prompted-agreement interface, and then followed by the open messaging interface.

(Confidence in desire for a date after messaging interaction:

Prompted-disagreement > Prompted-agreement > Open messaging)

In addition, this hypothesis predicts that the messaging interfaces will individually differ from one another in the following ways. These are listed below as sub-hypotheses:

H3A: The prompted-disagreement interface will produce significantly more confidence in desire to go on a regular date after a messaging interaction than the prompted-agreement interface.

(Confidence in desire for a date after messaging interaction:

Prompted-disagreement > Prompted-agreement)

H3B: The prompted-disagreement interface will produce significantly more confidence in desire to go on a regular date after a messaging interaction than the open messaging interface.

(Confidence in desire for a date after messaging interaction:

Prompted-disagreement > Open messaging)

H3C: The prompted-agreement interface will produce significantly more confidence in desire to go on a regular date after a messaging interaction than the open messaging interface.

(Confidence in desire for a date after messaging interaction:

Prompted-agreement > Open messaging)

Table 11.1 Summary of Hypotheses

H1	Difference in enjoyment of messaging and F-to-F interaction Prompted-disagreement < Prompted-agreement < Open messaging
H1A	Prompted-disagreement < Prompted-agreement
H1B	Prompted-disagreement < Open messaging
H1C	Prompted-agreement < Open messaging
H2	Difference in desire for a date after messaging and F-to-F interaction Prompted-disagreement < Prompted-agreement < Open messaging
H2A	Prompted-disagreement < Prompted-agreement
H2B	Prompted-disagreement < Open messaging
H2C	Prompted-agreement < Open messaging
H3	Confidence in desire for a date after messaging interaction Prompted-disagreement > Prompted-agreement > Open messaging
H3A	Prompted-disagreement > Prompted-agreement
H3B	Prompted-disagreement > Open messaging
H3C	Prompted-agreement > Open messaging

11.4 First-Date Conflict Stories

The prompted-disagreement and prompted-agreement messaging interfaces in the study featured four different first-date conflict stories. These stories were determined through the following process.

A series of 34 first-date conflict stories were initially created based on stories that participants in studies 1 and 2 told in their interviews, and also based on personal experiences of friends/colleagues. Each story depicted a 70-80 word scenario concerning a first date and ended by asking the reader to provide their opinion regarding the actions of one of the daters in the scenario. Two opinions were provided as a choice for the participants to choose from. A survey study using Amazon Mechanical Turk was conducted to identify a set of first-date conflict stories that satisfied the following criteria:

Agreement/disagreement is effectively randomized: split of opinion choices across the survey sample should be as close to 50/50 as possible to ensure there is no “socially appropriate” answer, and opinion choices should not be predicted by gender as to avoid gender effects. First-date conflict stories were considered appropriate for the study if there was a split of opinion no more disproportionate than 59% for one opinion choice and 41% for the other (across the whole survey sample and for each gender separately).

People would be willing to discuss the story with a potential romantic partner: this was assessed through a five-point Likert-scale survey question, “I would be willing to discuss this story with a potential/current romantic partner, regardless of their opinion choice.” Stories with average answers between 3 – neutral and 5 – strongly agree were considered appropriate for the study.

People would not quickly change their opinion choice to avoid a disagreement: this was assessed through a five-point Likert-scale survey question, “I could be easily convinced to change my opinion choice for this story.” Stories with average answers between 1 – strongly disagree and 3 – neutral were considered appropriate for the study.

People would not disqualify someone as a potential romantic partner simply for holding an opposing opinion: this was assessed through a five-point Likert-scale survey question, “I could not date someone that picked the opposite opinion choice for this story.” Stories with average answers between 1 – strongly disagree and 3 – neutral were considered appropriate for the study.

The 34 first-date conflict stories were split into four surveys to avoid respondent fatigue, which received a total of 275 responses (47.25% were male). The average age of

survey respondents was 35 years. Of the 34 original first-date conflict stories, eight satisfied the above four criteria. Four of those eight scenarios were featured in the prompted messaging interface variations in the speed dating event study (the ones closest to a 50%/50% split of opinion choices across daters attending the events; none had a split of opinion more disproportionate than 57%/43% in either direction). These were:

1. *Tony and Joan just finished their first date. They had an easy-flowing conversation and discovered they have a lot in common. However, Joan, who is 5'3", learned that Tony is actually 5'10"—he had told her before the date that he was 6'1". This is a deal breaker for Joan—she decides to not go on any more dates with Tony because he lied about his height. Was this a good reason for Joan to reject Tony?*
 - a. *Yes, Tony's dishonesty about his height was a good reason for Joan to reject Tony*
 - b. *No, Tony's dishonesty about his height was not a good reason for Joan to reject Tony*

2. *Harry and Danielle just finished their first date. They had an easy-flowing conversation and discovered they have a lot of things in common. However, Harry learned that Danielle is friends with his ex-girlfriend who he's no longer on speaking terms with. This is a deal breaker for Harry—he decides not to go on any more dates with Danielle because she's friends with his ex. Was this a good reason for Harry to reject Danielle?*
 - a. *Yes, Danielle being friends with his ex was a good reason for Harry to reject Danielle*
 - b. *No, Danielle being friends with his ex was not a good reason for Harry to reject Danielle*

3. *Annabelle and Donald are at a bar/restaurant for their first date. They are having an easy-flowing conversation and they discovered that they have a lot in common. They both had one beer so far. Donald gets up to order more drinks at the bar and says, "the next one is on me." He returns with a beer for Annabelle and a Sprite for himself. Annabelle is bothered by this. Is her reaction to Donald's behavior justified?*
 - a. *Yes, Annabelle should be bothered by Donald returning with a beer for her and a Sprite for him*
 - b. *No, Annabelle should not be bothered by Donald returning with a beer for her and a Sprite for him*

4. *Brian and Nancy are at a bar/restaurant for their first date. They are having an easy-flowing conversation and they discovered that they have a lot in common. While Nancy is telling a funny story about her job she hears a beep and takes her phone out of her purse to check a new text message she just received. Brian is bothered by this. Is his reaction to Nancy's behavior justified?*
 - a. *Yes, Brian should be bothered by Nancy checking her new message*
 - b. *No, Brian should not be bothered by Nancy checking her new message*

11.5 Method

11.5.1 Speed Dating Events

Individuals exposed to the online dating system included heterosexual, single men and women actively looking for partners to enjoy a romantic relationship with in the physical world (hereby called “daters”). This study used speed dating events as a way to recruit such daters and as a setting for exposure to the messaging interface variations and subsequent face-to-face meetings between potential romantic partners. Speed dating is defined by Eastwick and Finkel as follows:

“In speed dating, individuals looking to meet potential romantic partners attend an event where they go on a series of brief dates with other attendees. These dates last a uniform number of minutes within each event, although their durations vary from one event to another (typically from 3 to 8 min). After the event, participants have the opportunity to say “yes” or “no” to indicate whether they would like to see each of their dates again. If two speed daters say “yes” to one another, they are given the ability to contact each other for a future, presumably more traditional, date” [62] (p. 149).

Speed dating events have been commonly used in romantic attraction research to explore the influence of ideal partner preferences and choice on in-person romantic attraction, e.g., [50,59]. Additionally, using speed dating events to recruit participants is

an effective way to ensure that participants are indeed actively seeking a romantic partner.

While speed dating events typically consist of only one activity—short, one-on-one encounters between daters face-to-face (i.e., “speed dates”)—the speed dating events in this study had daters engage in one of two concurrent activities before their face-to-face encounters. At the start of the event, some daters used an online dating system on laptop computers to evaluate opposite sex daters through messaging interface variations. At the same time while daters were using the online dating system, other daters at the event participated in focus groups that gauged their personal reactions to mockups depicting the same variations of a messaging interface. After both of those activities concluded, all of the daters (regardless of which previous activity they were a part of) engaged in face-to-face speed dates with opposite sex daters. These speed dates were conceptualized as the initial face-to-face meetings that online daters have prior to deciding if they want to go on a longer, more explicitly romantic (“regular”) first date (see Section 11.7.2 for an explanation of this distinction).

Whether a given dater participated in online dating-system use or a focus group was determined by how many laptop computers for access to the online dating system were still available when the dater arrived at the event (this is discussed in more detail in Section 11.7.3.2 Arriving at the Speed Dating Event).

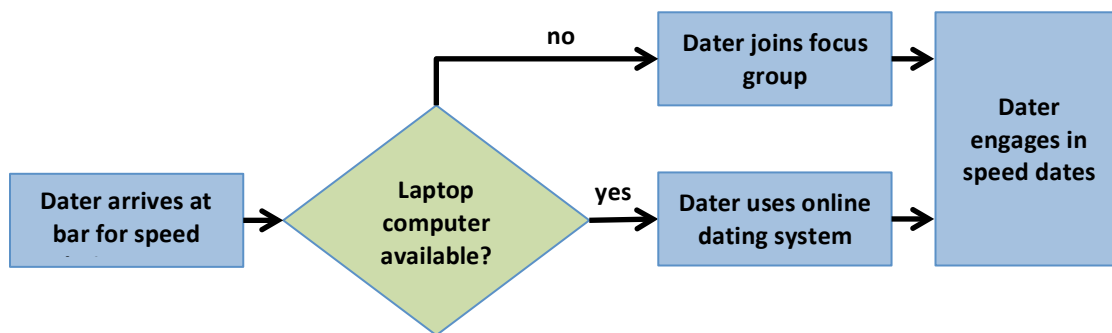


Figure 11.5 A given dater participated in either a focus group *or* use of the online dating system before engaging in face-to-face speed dates.

The speed dating events for this study were hosted at *Solas*, a bar in New York City. The speed dating events were hosted as private gatherings on the second floor of the bar, and were blocked off from regular bar patrons. The second floor of the bar included two small rooms and a larger area with a curtain that enabled this area to be separated into two sections, therefore providing a total of four separate rooms/areas with enough tables and chairs to comfortably hold all of the daters.

The large, curtained-off areas were called the “male computer room” and the “female computer room” and were used for the phases of the event that required use of the online dating system. Each of the computer rooms contained eight identical *Chromebook* laptops that were used for access to the online dating system. The female and male computer rooms were also used for the face-to-face speed dates at the end of the event. The other two rooms were called “male focus group room” and “female focus group room” and were used to conduct focus groups with excess daters that showed up to the event. The rooms/areas were arranged so that daters would not meet their potential romantic partners face-to-face until the appropriate phase of the study (face-to-face speed dates).



Figure 11.6 The male computer room. The curtain separating the male and female computer rooms can also be seen in the back of the picture.



Figure 11.7 The female computer room. The person standing is a research assistant.



Figure 11.8 The female computer room being used for face-to-face speed dates.

11.5.2 The Daters

A total of four speed dating events occurred in conjunction with this study. A total of 128 daters completed the sign up processes for the speed dating events, and a total of 85 daters actually attended the speed dating events (44 men, 41 women).

Table 11.2 Attendees of the Speed Dating Events

	Overall	Men	Women
All events (4 total)	85	44	41
Event 1	22	12	10
Event 2	26	12	14
Event 3	20	11	9
Event 4	17	9	8

There were 48 daters (24 men, 24 women) that used the online dating system to evaluate potential romantic partners online before meeting those potential partners face-to-face for speed dates. All of those daters were from speed dating events 2-4 because the online dating system crashed at the beginning of the first event.

Table 11.3 Attendees of the Speed Dating Events that Used the Online Dating System

	Overall	Men	Women
All events (4 total)	48	24	24
Event 1	0	0	0
Event 2	16	8	8
Event 3	16	8	8
Event 4	16	8	8

See additional demographic information for the users of the online dating system in the table below. Demographic information for the focus group participants is provided in the next chapter.

Table 11.4 Demographic Information For Users of the Online Dating System

Age	Education	Prior online dating experience
Range: 21-35	2 Doctoral	23 with 1+ years
Mean: 27.29	13 Masters	6 with 7-12 months
Men mean: 27.46	26 Bachelors	11 with 4-6 months
Women mean: 28.13	2 Associates	6 with 1-3 months
	2 Some college	2 with no experience
	3 High school diploma	

11.5.3 Procedure

The procedure for recruiting the daters and hosting the speed dating events is described below.

11.5.3.1 Recruiting Daters

For each speed dating event, an advertisement was posted on *Facebook* that targeted single men and women in the New York City area between the ages of 25 and 35 (see Appendix G for a copy of the *Facebook* ad). Content of the ad included a title (“Dating for Science”) and a tagline (“FREE dating event and dating technology demo”). Clicking the *Facebook* ad would bring the user to an *Eventbrite.com* page for the respective speed dating event, which enabled them to reserve a spot at the event and prompted them to complete a sign-up survey. The reason some daters that attended the speed dating events were below the age of 25 was because some daters asked their friends to sign up/attend with them, and because the *Eventbrite.com* page was publicly discoverable by users of *Eventbrite.com* that were browsing events in their area.

The *Eventbrite.com* page emphasized to daters that they would be exposed to new “online dating technology” as well as engage in typical speed dates with opposite sex partners. The page did not detail what the “online dating technology” was, how exposure to the technology would occur, or how it would play a role in their face-to-face speed dates. The *Eventbrite.com* page also advertised that every dater would receive \$20 for attending the speed dating event.

The sign-up survey gathered the following information about each dater: name, age, ethnicity, education, gender and sexual preference, consent to the IRB form, a picture of the dater, and opinion choices for eight first-date conflict stories. The survey

instructed daters to pick opinion choices for the first-date conflict stories honestly, but it did not explain the purpose or role of the stories in the speed dating event. Regarding pictures of the dater, the survey specified that the dater should upload a picture that accurately portrays what they look like and minimizes the presence of other people, objects, or scenery in the background. The survey also clarified that the picture would be seen by other daters attending the speed dating event. Every picture provided by a dater was reviewed by a researcher and deemed appropriate for the study.

Sign ups for each of the four speed dating events were capped at 16 men and 16 women, with an expectation that at least eight men and eight women would actually show up. Target attendance was set to eight men and eight women as to guarantee there was enough time in the event for a given dater involved in using the online dating system to have a messaging conversation and face-to-face conversation with each of their opposite sex partners without becoming exhausted.

11.5.3.2 Arriving at the Speed Dating Event

Upon arriving at their respective speed dating event, each dater was given a \$20 payment for attendance, a name tag, and a consent form to sign. If the dater was one of the first eight of their gender to arrive, they were designated to participate in the quantitative component of the study and escorted to the male/female computer room by a research assistant. Excess daters that arrived (beyond eight for their respective gender) were designated to participate in the qualitative component of the study and escorted by a research assistant to the male or female focus group room, each of which had a research assistant to supervise the daters.

Research assistants that escorted daters to the male/female computer room situated them with a *Chromebook* laptop computer, and logged them into the online dating system through the laptop's browser.

The speed dating event officially began once eight men and eight women were in attendance and logged into the online dating system, and the other daters in attendance were situated in the male/female focus group rooms. Excess daters that showed up to the event after the start time were sent directly to the male or female focus group room once they were checked in.

11.5.3.3 Briefing Focus Group Participants

It was explained to daters who were designated to participate in focus groups that they would still have an opportunity to meet opposite-sex daters for face-to-face speed dates, although they would not be directly using an online dating system at the event. In addition, it was explained to the daters in the focus group rooms that they may not have as many speed dates as other daters at the event because the daters in the quantitative component of the study were planned to complete all their speed dates with each other before meeting daters from the focus groups, at which point they may be too fatigued for more speed dates. Daters in the focus group rooms were given the option to leave the speed dating event and return for another speed dating event at a later date in which they would be guaranteed a laptop computer and entry to the quantitative component of the study. All focus group participants declined this option and chose to participate in the focus group and then meet which ever opposite sex daters were available for speed dates. Details of how the focus groups were conducted are provided in Chapter 12.

11.5.3.4 Evaluating Potential Romantic Partners with the Online Dating System.

The first eight men and women to arrive at a respective speed dating event were sent to the male/female computer rooms where they would use the online dating system on laptops to evaluate their opposite sex daters. At each speed dating event, once eight men and eight women were logged into the online dating system, research assistants explained to these daters that the event was going to begin. During this explanation the daters were told they would first evaluate eight opposite sex daters using the online dating system, which would involve looking at a picture of each dater and then having a conversation with each dater using a messaging interface.

Once those phases were completed they would then meet those same opposite sex partners face-to-face for speed dates. (Daters participating in the focus groups at the respective event were not included/discovered in the online dating system.) After this explanation the daters in the male and female computer rooms concurrently began the first phase of using the online dating system: viewing pictures of the opposite sex daters.

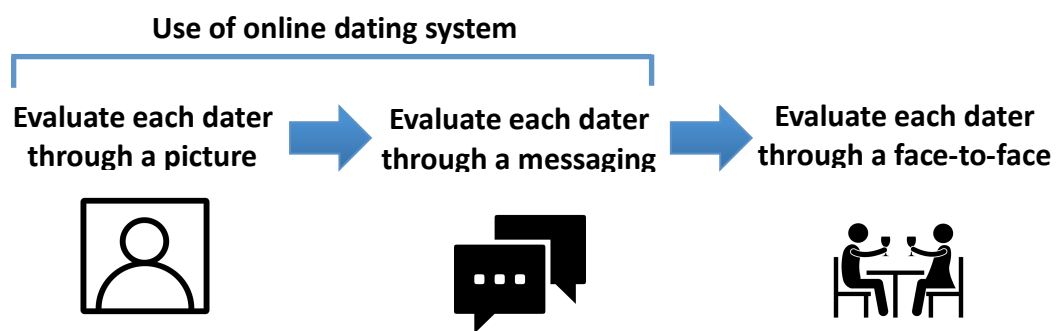


Figure 11.9 The process of potential romantic partner evaluation that each dater using the online dating system engaged in at a speed dating event.

11.5.3.5 Evaluating Potential Romantic Partners through Pictures.

The first phase of evaluating potential romantic partners through the online dating system involved viewing profile pages, which consisted only of a dater's first name and a picture that they uploaded while signing up for the dating event. Daters viewed the profile pages of their eight potential romantic partners one at a time and in randomized order. After viewing each profile page, the dater filled out a "post-profile page evaluation" survey, which consisted of a question gauging their desire to go on a regular date with the potential romantic partner (which would presumably be based solely on the physical appearance of the dater), and a question about their confidence in their answer to the previous question. It was explained to the daters that questions about the decision to go on a date pertained to a longer, more explicitly romantic ("regular") date outside of the study, and not the face-to-face speed date that they would have at the end of the speed dating event.

The purpose of the profile pages for this study was to expose users to the physical appearance of their potential romantic partners before having messaging interactions and meeting face-to-face. Since physical attractiveness would unavoidably factor into evaluations of potential romantic partners face-to-face, it was important to introduce the effect of physical attractiveness during use of the online dating system so it would not confound comparisons between evaluations of potential romantic partners made after messaging interactions and those made after face-to-face meetings.

This phase of evaluation took approximately 10 minutes in each speed dating event. Once a dater finished evaluating all of the profile pages, the online dating system

returned them to a “home page” with instructions to wait for the research team to explain the next step of the event.

11.5.3.6 Evaluating Potential Romantic Partners through Messaging Interfaces.

Once all daters completed evaluation of profile pages, researchers explained to each room that they would next interact with the opposite sex daters using various messaging interfaces within the online dating system. It was explained that they would interact with each opposite sex dater one by one for a total of eight messaging conversation rounds. Before each round, it was explained to the daters that the messaging conversation would last for four minutes and the daters were told to continue exchanging messages for the entire four minutes. They were also reminded to observe the instructions given by the messaging interface in regards to what topics they could/should talk about, as those instructions could change with each round of conversation. Daters were told that they should not discuss messaging conversations they had with other daters at the event or topics of prior conversations.

After each messaging conversation, it was explained to the daters that they would fill out a survey regarding the potential romantic partner that they just had a messaging conversation with (“post-messaging evaluation” survey).

After confirming that all daters completed the post-messaging evaluation survey for a respective round of conversation, researchers re-explained the directions for the next messaging round. Daters were also given approximately 30 seconds to familiarize themselves with the instructions in the messaging interface (e.g., open messaging, prompted-disagreement, prompted-agreement) before the start of each conversation

round. Once the researchers confirmed that all daters understood their instructions for the respective round they initiated the four-minute timer.

In all, every dater engaged in eight rounds of messaging conversations because there were eight daters of the opposite gender using the online dating system in every speed dating event. A counterbalanced order for dater-pairings and exposure to the messaging interfaces was used to guarantee that every dater talked to each of the eight opposite sex daters without being prompted to talk about the same first-date conflict story more than once. This counterbalanced order is presented on the next page:

Table 11.5 Counterbalanced Order of User Pairings and Messaging Interface Exposure

Round 1		Round 2		Round 3		Round 4		Round 5		Round 6		Round 7		Round 8	
Inter- face	User pair	Inter- face	User pair	Inter- face	User pair	Inter- face	User pair	Inter- face	User pair	Inter- face	User pair	Inter- face	User pair	Inter- face	User pair
O	M1-F1	P-B	M1-F4	O	M1-F3	P-A	M1-F2	O	M1-F5	P-D	M1-F8	O	M1-F7	P-C	M1-F6
O	M2-F2	P-B	M2-F1	O	M2-F4	P-A	M2-F3	O	M2-F6	P-D	M2-F5	O	M2-F8	P-C	M2-F7
O	M3-F3	P-B	M3-F2	O	M3-F1	P-A	M3-F4	O	M3-F7	P-D	M3-F6	O	M3-F5	P-C	M3-F8
O	M4-F4	P-B	M4-F3	O	M4-F2	P-A	M4-F1	O	M4-F8	P-D	M4-F7	O	M4-F6	P-C	M4-F5
P-A	M5-F5	O	M5-F8	P-B	M5-F7	O	M5-F6	P-C	M5-F1	O	M5-F4	P-D	M5-F3	O	M5-F2
P-A	M6-F6	O	M6-F5	P-B	M6-F8	O	M6-F7	P-C	M6-F2	O	M6-F1	P-D	M6-F4	O	M6-F3
P-A	M7-F7	O	M7-F6	P-B	M7-F5	O	M7-F8	P-C	M7-F3	O	M7-F2	P-D	M7-F1	O	M7-F4
P-A	M8-F8	O	M8-F7	P-B	M8-F6	O	M8-F5	P-C	M8-F4	O	M8-F3	P-D	M8-F2	O	M8-F1

M1-F1 = male subject 1 has a messaging conversation with female subject 1

O = open messaging interface used

P-A/B/C/D = Messaging interface is prompted with first-date conflict story A, B, C, or D.

The counterbalanced table shows dater-pairings for each of the eight rounds of messaging conversation along with the messaging interface assigned to each pairing per round. The counterbalanced order ensured that every subject was exposed to each of the opposite sex daters exactly once and it also ensured that every dater was exposed to the open messaging interface four times and an interface prompted with a first-date conflict story four times without ever discussing the same first-date conflict story more than once. In order to minimize the number of different first-date conflict stories used in the study (which represent potential confounders), the counterbalanced order did not deliberately assign prompted-disagreement and prompted-agreement interfaces. Opinion choices previously selected by each subject while signing up for the speed dating event determined whether an agreement of opinion or disagreement of opinion was shown when a dater-pair was assigned the prompted interface. While the counterbalanced order did not necessarily guarantee exposure to both the prompted-disagreement and prompted-agreement interfaces, all but one subject across all speed dating events were exposed to the prompted-disagreement interface and prompted-agreement interface at least once each because the split of opinion choices for every first-date conflict story was close to 50%/50% (meaning subjects effectively had a 50% chance of being exposed to an agreement or disagreement whenever they were assigned to use the prompted interface).

11.5.3.7 Evaluating Potential Romantic Partners through Face-to-Face Speed

Dates. Once all rounds of messaging conversation had concluded, the focus group participants were escorted into the male/female computers rooms based on their gender. This means that all male daters (regardless of which activity they had just

engaged in) were put together in the male computer room, and all female daters were together in the female computer room.

The laptop computers were removed and tables and chairs were arranged in the female computer room so that each female dater would have a table and chair for a male dater to sit at and interact with them face-to-face. Paper printouts of the “post-speed date evaluation survey” and pens were handed out to each dater while tables were being arranged. This survey was largely identical to the post-messaging interface evaluation survey to enable comparison of answers, with the addition of a question asking the dater if they wish to exchange contact information with the respective potential romantic partner (this was the only question that daters from the focus groups had to answer after each speed date).

Once all daters had surveys and pens in hand, it was explained that they were about to engage in four-minute “speed dates” with the opposite sex daters. These were face-to-face, one-on-one interactions between opposite sex daters during which they could discuss whatever they wanted. After each 4-minute speed date, the men would move one seat to the left and all daters would fill out the post-speed date evaluation survey for the dater they had just finished interacting with. Once it was confirmed all daters completed the survey for the respective round, the four-minute timer would be initiated and the next round would begin.

The order of speed dates was arranged so that daters who used the online dating system completed their face-to-face speed dates with all of the opposite sex daters they had discovered in the online dating system before engaging in speed dates with the focus group participants. This choice was made so that daters who used the online dating

system evaluated the same number of opposite sex daters during profile page viewing, during messaging, and during face-to-face speed dates. This resulted in two “circles” of speed dates—one of only daters who used the online dating system, and one of only daters who engaged in focus groups. Once both “circles” had completed all of their face-to-face speed dates, the daters were told there were additional potential partners they could meet face-to-face (from the component of the study that they did not partake in). Those willing to go on more speed dates they continued with additional speed date rounds, while those too fatigued for additional speed dates handed in their surveys and left the event.

This organization of speed dates was a disadvantage to participants in the focus groups because they did not meet opposite sex daters from the quantitative component of the study until after they had completed eight speed dates, at which point some were too fatigued for more speed dates. As stated in Sub-section 11.5.3.3 Briefing Focus Group Participants, daters were made aware of this possibility when they arrived at the event.

11.5.3.8 Ending the Speed Dating Event. Once all face-to-face speed dating rounds concluded, the post-speed date evaluation surveys were collected and tabs with the bar were settled. The daters were thanked for their time and told they would receive an e-mail the following day with contact information for any of the opposite sex daters that they matched with in the post-speed date evaluation survey.

The daters were then encouraged to contact the research team in the future to update them about any relationship success with partners they discovered at the speed dating event. To conclude, the daters were invited to ask any questions about the speed dating event or online dating in general.

11.6 Survey Materials: Operationalizing the Dependent Variables

A total of four different surveys were used throughout the study: a sign up survey and three different potential romantic partner evaluation surveys (post-profile page evaluation, post-messaging interface evaluation, and post-speed date evaluation). The post-profile page evaluation survey and post-messaging interface evaluation survey were filled out only by daters who used the online dating system.

The dependent variables for the study pertaining to hypotheses 1-3 were operationalized through questions in the surveys. These are discussed below. Complete copies of all four surveys for this study can be found in the Appendices (Appendix H for the sign up survey, Appendix I for the post-profile page evaluation survey, Appendix J for the post-messaging interface evaluation survey, and Appendix K for the post-speed date evaluation survey).

Enjoyment of interaction: this variable (for H1) was operationalized in two ways in the post-messaging interface evaluation survey and post-speed date evaluation survey. The first operationalization involved a survey question regarding the “impact rating” or “reward value” that a dater derived from a potential romantic partner’s statements during a given interaction [158]. This five-point Likert-scale question was borrowed from the marriage literature involving problem-solving discussions. Impact ratings for a partner’s statements during an interaction can be: super negative, negative, neutral, positive, or super positive [119].

The “impact” of a partner’s statements may not be the only influence on enjoyment derived from an interaction. For example, a user could enjoy talking about one first-date conflict story, but find another story boring. In addition, an emphasized agreement or disagreement of opinion in the messaging interface could also play a role in the enjoyment of interactions through such an interface. To help ensure a more holistic capturing of enjoyment of interactions in this study, a second operationalized definition was included. This involved the *enjoyment of interaction* index survey questions from the Rochester Interaction Record/RIR [183,211]. This includes four Likert-scale questions (7-points each) about quality of an interaction, degree of closeness/camaraderie with the communication partner in a given interaction, level of satisfaction with an interaction, and satisfaction with an interaction relative to expectations.

Desire for a regular date: this variable (for H2) was operationalized with a seven-point Likert-scale survey question in the post-messaging interface evaluation survey and the post-speed date evaluation survey: “*If I had to make a choice right now, I would choose to go on a date with this person.*” (It was explained to daters in the study

that “go on a date” in this question pertained to a longer, explicitly romantic “regular” date outside the context of the study, not the face-to-face “speed date” that they would inevitably partake in during the study).

Confidence in desire for a regular date after messaging interaction: This variable (for H3) was operationalized with the following Likert-scale survey question in the post-messaging evaluation survey: *“I am very confident that I would answer the previous question the same way after meeting this person face-to-face.”* (“Previous question” refers to the survey question for the variable concerning the decision to go on a regular date).

Table 11.6 Survey Questions Relating to Dependent Variables

Conceptual definition	Operationalization	Survey location
Enjoyment of interaction	1. "Impact rating"/"Reward value" of partner's statement during interaction [158,159] (single Likert-scale question)	Post-messaging interface survey: Q3*** Post-speed date survey: Q4***
	2. "Enjoyment of interaction" index from Rochester Interaction Record (RIR) [183,211] (4 Likert-scale questions)	Post-messaging interface survey: Q4-7*** Post-speed date survey: Q5-8***
Desire for a regular date	Single likert-scale survey question: <i>"If I had to make a choice right now, I would choose to go on a date* with this person."</i>	Post-messaging interface survey: Q1*** Post-speed date survey: Q2***
Confidence in desire for a regular date after messaging interaction	Single likert-scale survey question: <i>"I am very confident that I would answer the previous question** the same way after meeting this person face-to-face."</i>	Post-messaging interface survey: Q2***

* It was explained to the daters that "go on a date" in this question pertained to a regular date outside the context of the study, not the face-to-face "speed date" that they would inevitably partake in during the study.

** "Previous question" refers to the survey question for the first dependent variable concerning the desire for a regular date.

***Refer to Appendices C-F for copies of the surveys

11.7 Results from Use of the Online Dating System

Of the 48 users (24 men, 24 women) that used the online dating system, 47 were included in quantitative analysis. One female user was removed from analysis because she did not use the prompted-agreement interface. The other 47 users (24 men, 23 women) used each of the three messaging interface variations—prompted-disagreement, prompted-agreement, and open messaging—at least once according to the counterbalanced order described in the Method.

Below, tests for potential confounders are reported, followed by descriptive statistics, and results relating to the hypotheses are reported after that.

11.7.1 Tests for Potential Confounders

The data was first analyzed for the following potential confounding effects that could inform or influence how the hypotheses should be tested.

1. Can enjoyment of interaction and desire for a date be predicted simply by the opinion choices picked by users for the first-date conflict stories, regardless if users were made aware of agreement/disagreement of opinion choices in the messaging interface?
2. Order effects - did the order in which users first used each messaging interface change the effect that each messaging interface had on their evaluations of potential romantic partners?
3. Were any of the four first-date conflict stories better than the others at yielding enjoyment of messaging interaction or desire for a regular date after messaging that more closely matched such enjoyment and desire after meeting face-to-face?
4. Gender effects – did the messaging interfaces affect men and women differently?

Regarding the first potential confounder, it can be asked whether agreement/disagreement of opinion regarding first-date conflict stories, by itself without awareness of such agreement/disagreement by the users, can explain differences in enjoyment of interactions and desires for regular dates. In other words, could opinion choices picked by users regarding the first date conflict stories, distinct from messaging interactions prompted with these stories, be indicative of underlying compatibility issues that predict enjoyment of interaction and desire for a regular date? This potential confounder was tested for in three ways.

First, open messaging interface was treated as two interfaces—an open-agreement interface (two users agreed on the story assigned to the respective messaging conversation round, unbeknownst to them) and an open-disagreement interface (two users disagreed on the story assigned to that round, unbeknownst to them). Significant

differences between these two interfaces would give evidence to this confounding effect. A Wilcoxon signed-rank test was used to explore differences between these two messaging interface conditions in regards and each dependent variable (differences in enjoyment of messaging and face-to-face interaction, differences in desire to go on a regular date after messaging and after face-to-face interaction, and confidence in desires for a regular date after messaging). These dependent variables were operationalized in two different ways: as rank orders to reduce variation caused by having a different interaction partner in each messaging round (i.e., ranking the two interfaces as 1 or 2 based on which had the smallest difference/confidence), and as raw scores/actual values for the variables. None of the Wilcoxon signed-ranks tests elicited a statistically significant difference.

Table 11.7 Wilcoxon Signed-Rank Tests Comparing the Open-Disagreement and Open-Agreement Messaging Interface Conditions

	Go on a date (raw)	Go on a date (rank)	Interaction enjoyment 1 (raw)	Interaction enjoyment 1 (rank)	Interaction enjoyment 2 (raw)	Interaction enjoyment 2 (rank)	Confidence (raw)	Confidence (rank)
Z	-.098	-.160	-.616	-.745	-.338	-.949	-.256	.000
Sig	.922	.873	.538	.456	.735	.343	.798	1.000

Other ways of testing this potential confounder involve an “overall agreement” score, or how much a pair of users agreed on all four first date conflict stories featured in the study. An overall agreement score per pair of daters was computed by adding the number of first date conflict stories that the two users agreed on. This score could range from 0 (the pair did not agree on any story) to 4 (the pair agreed on all stories). The potential confounding effect of overall agreement scores was explored in two ways. First, Spearman’s rank-order correlations were calculated in which one variable was the

average overall agreement score for each participant per messaging interface (i.e., an average overall agreement score with daters that one interacted with through the open messaging interface, and then the prompted-agreement interface, and then the prompted-disagreement interface), and the other variable was the rank and raw score/actual value for each dependent variable per messaging interface. No significant correlations were found (see tables below).

Table 11.8 Spearman’s Rank-Order Correlations Between Average Overall Agreement Scores with Daters Interacted with through the Open Messaging Interface and the Dependent Variables of the Study

	Go on a date (raw)	Go on a date (rank)	Interaction enjoyment 1 (raw)	Interaction enjoyment 1 (rank)	Interaction enjoyment 2 (raw)	Interaction enjoyment 2 (rank)	Confidence (raw)	Confidence (rank)
r_s	.039	-.002	-.028	-.153	-.017	-.072	.118	-.194
Sig	.793	.990	.850	.304	.908	.628	.141	.191

Table 11.9 Spearman’s Rank-Order Correlations Between Average Overall Agreement Scores with Daters Interacted with through the Prompted-Agreement Interface and the Dependent Variables of the Study

	Go on a date (raw)	Go on a date (rank)	Interaction enjoyment 1 (raw)	Interaction enjoyment 1 (rank)	Interaction enjoyment 2 (raw)	Interaction enjoyment 2 (rank)	Confidence (raw)	Confidence (rank)
r_s	-.124	-.059	-.236	-.180	.034	.002	-.003	.036
Sig	.406	.695	.111	.226	.821	.988	.985	.809

Table 11.10 Spearman’s Rank-Order Correlations Between Average Overall Agreement Scores with Daters Interacted with through the Prompted-Disagreement Interface and the Dependent Variables of the Study

	Go on a date (raw)	Go on a date (rank)	Interaction enjoyment 1 (raw)	Interaction enjoyment 1 (rank)	Interaction enjoyment 2 (raw)	Interaction enjoyment 2 (rank)	Confidence (raw)	Confidence (rank)
r_s	-.041	-.224	-.062	.022	.035	.077	.041	-.091
Sig	.789	.139	.687	.885	.821	.614	.790	.554

Additional Spearman’s rank-order correlations were calculated for all messaging interactions (n=368) in which one variable was the overall agreement score for the two

daters in a given messaging interaction and the other variable involved the raw score/actual for each dependent variable for that pair of daters. No significant correlations were found.

Table 11.11 Spearman’s Rank-Order Correlations Between Overall Agreement Scores Between Daters in every Messaging Interaction and the Dependent Variables of the Study

	Go on a date	Interaction enjoyment 1	Interaction enjoyment 2	Confidence
r_s	-.017	.105	-.101	.097
Sig	.912	.483	.498	.516

Another potential confounder is order effect, or the order in which users were subjected to a given messaging interface. To assess this potential confounder, a Spearman’s rank-order correlation was run with the first variable being the order in which a user was exposed to the prompted-disagreement interface (1st, 2nd, or 3rd out of the three messaging interface variations) and the second variable being the prompted-disagreement interface’s a) raw score/actual value and b) rank (out of the three interface variations) for each of the dependent variables per user. There were no statistically significant correlations, meaning there is no evidence of an order effect.

Table 11.12 Spearman’s Rank-Order Correlations Between the Order in which Users Were Exposed to the Prompted-Disagreement Condition and the Dependent Variables of the Study

	Go on a date (raw)	Go on a date (rank)	Interaction enjoyment 1 (raw)	Interaction enjoyment 1 (rank)	Interaction enjoyment 2 (raw)	Interaction enjoyment 2 (rank)	Confidence (raw)	Confidence (rank)
r_s	-.069	-.040	-.085	.088	-.067	-.005	-.253	-.144
Sig	.646	.791	.569	.558	.654	.975	.086	.334

A third potential confounder pertains to the four first-date conflict stories featured in the study. Do messaging interactions prompted with these four different stories differ

significantly in regards to the dependent variables (differences in enjoyment of messaging and face-to-face interaction, differences in desire to go on a regular date after messaging and after face-to-face interaction, and confidence in desires for a regular date after messaging)? Since all users were prompted to discuss each of the four dating stories, a Friedman test was run for each dependent variable to test for significant differences in the four stories. The Friedman tests were not statistically significant for any of the dependent variables ($\chi^2(3) = 2.729, p = 0.435$ for differentials regarding decisions to go on a regular date, $\chi^2(3) = 3.591, p = 0.309$ for differentials regarding impact ratings, $\chi^2(3) = 5.887, p = 0.117$ for differentials regarding the “enjoyment of interaction” index, and $\chi^2(3) = 1.804, p = 0.614$ for confidence in decisions to go on a regular date after messaging). This means there is no evidence that the four first-date conflict stories significantly differed in regards to how they affected enjoyment of interaction, desire for a regular date, or confidence in desire for a regular date.

Lastly, potential gender differences were assessed. To test for this, a Spearman’s rank-order correlation was calculated where the first variable was gender (male or female) and the second variable was the prompted-disagreement’s a) raw score/actual value and b) rank (out of the three interface variations) for each of the dependent variables per user. Results show a significant correlation between gender and differences in impact ratings between prompted-disagreement messaging interaction and face-to-face interaction (as a raw differential: $r_s = .341, p = .019$; and as a rank order: $r_s = .293, p = .046$). An additional Spearman’s rank-order correlation was run with raw scores and ranks for the prompted-agreement interface, which showed a significant correlation between gender and the prompted-agreement interface’s rank order for differences in

desire for a regular date after messaging and after a face-to-face interaction ($r_s = -.468, p = .001$). Because of these significant correlations, there is evidence of gender differences in regards to how the messaging interfaces affected enjoyment of interaction and desires for a regular date. As such, the hypotheses for this study will be assessed for each gender separately.

The previously mentioned potential confounders were retested for each gender separately and no significant results were found. There are other potential confounders unique to particular dependent variables (e.g., could differences in decisions for a regular date and confidence in those decisions be explained by profile picture attractiveness?). These dependent variable-specific potential confounders are tested with their respective hypotheses in a later section.

11.7.2 Descriptive Statistics

Descriptive statistics for the online dating system users are reported in Table 11.6 below. Because of gender differences detected in the previous section, descriptive statistics are reported for men and women individually, as well as for the overall sample. In regards to average enjoyment of interactions (rows A-D in the table), men and women found their interactions to be generally enjoyable; the averages for enjoyment of messaging and face-to-face interactions were above the midpoint for both genders (above 3 out of 5 points for “impact ratings,” and above 14 out of 28 points for the “enjoyment of interaction” index), with the exception of messaging interactions for women (which had a average score on the “enjoyment of interaction” index of 13 out of 28 points). On average men tended to find messaging and face-to-face interactions to be more enjoyable than did women (rows A-D).

Table 11.13 Descriptive Statistics Regarding the Online Dating System Users

	Statistic	Overall	Men	Women
A	Enjoyment of messaging interaction (impact* - out of 5 points)	3.5115	3.7430	3.2699
B	Enjoyment of face-to-face interaction (impact*)	3.7446	4.0416	3.4347
C	Enjoyment of messaging interaction (RIR** - out of 28 points)	15.143	17.083	13.117
D	Enjoyment of face-to-face interaction (RIR**)	17.8803	19.953	15.7173
E	Focus group participants' enjoyment of face-to-face interaction (impact* - out of 5 points)	3.7941	4.0823	3.5121
F	Focus group participants' enjoyment of face-to-face interaction (RIR** - out of 28 points)	18.6301	21.034	16.2953
G	Difference between enjoyment of messaging interaction and face-to-face interaction (impact* - out of 5 points)	+0.242	+0.270	+0.211
H	Difference between enjoyment of messaging interaction and face-to-face interaction (RIR** - out of 28 points)	+1.396	+1.588	+1.195
I	Difference between enjoyment of messaging interaction and face-to-face interaction (impact ratings* - difference out of 5 points, independent of direction of change)	0.7293	0.6759	0.7850
J	Difference between enjoyment of messaging interaction and face-to-face interaction (RIR** - difference out of 28 points, independent of direction of change)	5.1477	4.9074	5.3985
K	Correlation between impact ratings* and RIR scores** from messaging interaction	$r_s=.631$ $p<.<001$	$r_s=.374$ $p=.072$	$r_s=.541$ $p=.008$
L	Correlation between impact ratings* and RIR scores** from face-to-face interaction	$r_s=.839$ $p<.<001$	$r_s=.74$ $p<.<001$	$r_s=.801$ $p<.<001$
M	Desire for a regular date after messaging (7 points)	4.1412	4.8321	3.4202
N	Desire for a regular date after face-to-face interaction (out of 7 points)	4.117	5.0416	3.1521
O	Focus group participants' desire for a regular date after face-to-face interaction (out of 7 points)	4.144	5.2242	3.0714
P	Change in desire for a date between messaging and face-to-face interaction (out of 7 points)	+0.087	+0.218	-0.0489
Q	Change in desire for a date between messaging and face-to-face interaction (out of 7 points, independent of direction of change)	1.2263	1.0659	1.3937
R	Confidence in desire for date after messaging (7 points)	4.7234	4.6261	4.8248
S	# of requests to exchange contact info (out of 8)	3.4680	4.7916	2.0869
T	# of matches per user	1.3829	1.4583	1.3043
U	% of contact info requests that were reciprocated	0.4159	0.3156	0.53125
V	Total # of matches	47		
W	Couples confirmed as dating after study	3		

* "Impact ratings" operationalization [158]; based on a 5-point Likert scale

** "Enjoyment of interaction" index from RIR [183]; based on four items with 7-point Likert scales (28 total points)

For comparisons, some statistics for the focus group participants are also included in the table (since they also participated in face-to-face speed dates at the end of the event). Face-to-face interactions for focus group participants (i.e., speed daters that did not use the online dating system before meeting potential romantic partners face-to-face) exhibited enjoyment of their face-to-face interactions that was slightly higher than the online dating system users, which may have been due to them having to wait longer to interact with potential romantic partners (rows E and F). Like the online dating system users, females in the focus groups tended to enjoy their interactions less than men.

Face-to-face speed date interactions between online dating system users were more enjoyable than messaging interactions on average for both men and women (rows G and H), and women tended to experience greater average changes in enjoyment between messaging and face-to-face interactions than did men (rows I and J). Rows K and L indicate that scores for the two operational definitions of enjoyment of interaction in the study—“impact ratings” of the partner’s statements and the “enjoyment of interaction” index—were generally correlated, as would be expected.

Men tended to have more desire than did women for a regular date with a potential romantic partner after interacting with them either through messaging or face-to-face (rows M and N). This trend was mimicked for the focus group participants after their face-to-face speed dates as well (row O). On a seven-point Likert scale question probing how much the user agreed with the statement “*I would choose to go on a date with this person,*” the average response for women in either messaging or face-to-face contexts was between 3 - “*disagree a little*” and 4 - “*neither agree nor disagree.*” For men, the average response was closest to 5 - “*agree a little,*” indicating that men on

average desired a regular date after interacting with a given potential partner, while women on average did not.

Women tended to experience a greater change in desire for a regular date between messaging interaction and the face-to-face speed date interaction (line Q), and that change in desire tended to be negative (row P). Men, by contrast, on average experienced greater desire for a regular date after a face-to-face speed date interaction compared to after a messaging interaction (row P). Both genders on average were confident in their desires for a regular date after messaging (row R), with the average score for both genders being above the midpoint (4) on a seven-point Likert scale.

After the face-to-face speed dates, daters indicated which potential romantic partners they wanted to exchange contact information with. Such information was only exchanged when there was a mutual desire to do so (these instances are typically called “matches” at speed dating events [62]). From row S in the table, men expressed a desire to exchange contact information with more of their potential partners than women. Specifically, men on average wanted to exchange contact information with 4.79 of the eight women they met face-to-face, while women wanted to exchange contact information with 2.09 of the eight men that they met face-to-face. On average users matched with more than one potential romantic partner (row T), with men having approximately 32% of their contact information requests reciprocated and women having approximately 53% of their requests reciprocated (row R).

There were a total of 47 matches (reciprocated contact information requests) between the 47 online dating system users included in analysis. Of those matches, three couples confirmed—as of this writing—that they are dating/in a relationship.

11.7.3 Results for Hypotheses

Hypotheses were tested for male and female samples separately for each dependent variable (because of gender effects reported earlier). To explain the tests used to explore the hypotheses, two decisions must be clarified. First, to control for variance and extreme outliers in answers to survey questions caused by having a different interaction partner in every messaging round (which is likely compounded by the relatively small sample size of the study [203,226]), rank orders for the three interfaces were used for analysis of the respective dependent variable per hypothesis as opposed to raw scores/actual values for the dependent variable. Second, non-parametric tests were used to address the hypotheses. Non-parametric tests differ from parametric tests in that they do not assume that the data is normally distributed [79]. There are two reasons why nonparametric tests are appropriate for testing the hypotheses of this study. One, the dependent variables were operationalized with Likert scales, meaning they were measured at the ordinal level. Parametric tests, which assume continuous data, would thus not be appropriate. Non-parametric tests, on the other hand, can handle ordinal data [136,226]. Two, the median rankings better represent the center of the distribution for a given dependent variable than the mean in this study. For reasons similar to why rank orders of the interfaces were used in analysis instead of raw scores/actual values, variance caused by interacting with a different potential romantic partner in each messaging round and the relatively small sample size of the study can strongly affect the mean for a given dependent variable. Median data points are not as sensitive to these circumstances and would thus be a better measure of central tendency [203]. Non-parametric tests are an appropriate choice here

because they analyze differences in median rankings, while parametric tests are based on group means.

The primary hypotheses (H1, H2, and H3) had predicted a trend, or an order regarding how the interfaces would perform relative to each other. For each of the dependent variables, it was generally hypothesized that the prompted-disagreement would perform best, followed by the prompted-agreement interface, followed by the open messaging interface. To test the primary hypotheses, distributions were inspected by looking at the median rankings of the interfaces to gauge if the interfaces tended to be ranked according to the hypothesized trend (prompted-disagreement interface first, followed by the prompted-agreement interface, and then the open messaging interface). If median rankings followed the hypothesized trend, a Mann Kendall Trend Test was performed to test if the trend of rankings was statistically significant.

Sub-hypotheses for each dependent variable (e.g., H1A, B, and C) predicted significant differences between individual interfaces (e.g., the prompted-disagreement interface would significantly differ from the prompted-agreement interface). To test the sub-hypotheses, first a Friedman test was performed, which rank ordered the three messaging interfaces for each user in regards to the respective dependent variable and then tested if there was a significant difference in the distribution of ranks between any of the interfaces. As an omnibus test, the Friedman test indicates whether there is a significant difference in the ranks between the interfaces overall, but not where those differences occur. If a Friedman test was statistically significant, a Wilcoxon signed-rank test was run to detect which interfaces significantly differed from one another by comparing the median rankings for one interface against another (prompted-disagreement

to prompted-agreement, prompted-disagreement to open messaging, and prompted-agreement to open messaging).

A Holm-Bonferroni adjustment was applied to the results of the Wilcoxon signed-rank tests to control against Type I error [111]. The Holm-Bonferroni adjusted significance levels for the Wilcoxon signed-rank tests, given that there were three messaging interface comparisons, were .017 for the pair with the smallest p-value, .025 for the pair with the second smallest p-value, and .05 for the pair with the third smallest p-value. Results are reported for each hypothesis below.

11.7.3.1 Results for Hypothesis 1. The first hypothesis was as follows:

H1: Enjoyment of messaging interaction through the prompted-disagreement interface will most accurately predict enjoyment of subsequent face-to-face interaction with a respective potential romantic partner, followed by the prompted-agreement interface, and then followed by the open messaging interface.

(Difference in enjoyment of messaging and F-to-F interaction:

Prompted-disagreement < Prompted-agreement < Open messaging)

In addition, it was hypothesized that the messaging interfaces would individually differ from one another in the following ways.

H1A: The prompted-disagreement interface will produce significantly smaller differences in enjoyment of messaging interactions and subsequent face-to-face interactions than the prompted-agreement interface.

(Difference in enjoyment of messaging and F-to-F interaction:

Prompted-disagreement < Prompted-agreement)

H1B: The prompted-disagreement interface will produce significantly smaller differences in enjoyment of messaging interactions and subsequent face-to-face interactions than the open messaging interface.

(Difference in enjoyment of messaging and F-to-F interaction)

Prompted-disagreement < Open messaging)

H1C: The prompted-agreement interface will produce significantly smaller differences in enjoyment of messaging interactions and subsequent face-to-face interactions than the open messaging interface.

(Difference in enjoyment of messaging and F-to-F interaction:

Prompted-agreement < Open messaging)

To test these hypotheses, enjoyment of interaction was operationalized in two ways: 1) with an impact rating/reward value of a partner's statements during an interaction [158] (from "super negative" to "super positive") and with the "enjoyment of interaction" index from the Rochester Interaction Record (RIR) [183], which included four questions regarding the quality of an interaction, satisfaction with an interaction, and degree of closeness in an interaction.

Differences in enjoyment of messaging interactions and subsequent face-to-face interactions were computed for each operationalization as the absolute value of the difference between scores after a messaging interaction and after a face-to-face speed date interaction with the same potential romantic partner. For example, if Bob selected an impact rating of 5 – "super positive" for Sarah's statements during a messaging

interaction and then 2 – “negative” for Sarah’s statements during the subsequent face-to-face speed date interaction, the difference in impact as an absolute value would be 3.

When rank ordering the messaging interfaces for each user, the interface that yielded the smallest difference in enjoyment of interaction was ranked #1, and the interface yielding the largest difference was ranked last.

11.7.3.1.1 Hypothesis 1 Results for Women.

The first operationalization for enjoyment of interaction pertained to “impact” ratings of a partner’s statements during an interaction (a 5-point Likert scale from 1 – super negative to 5 – super positive) [158]. According to the Friedman test for female users, there was a statistically significant difference in impact rating differentials (between messaging interaction and face-to-face speed date interaction) depending on which messaging interface was used, $\chi^2(2) = 8.240, p = 0.016$. Median ranks for the messaging interfaces went against expectations—the prompted-agreement interface was ranked #1, followed by the prompted-disagreement interface, and then the open messaging interface. Hence H1 is not supported for the impact rating operationalization.

Since the Friedman test indicated a significant difference in the distribution of ranks between the interfaces, Wilcoxon signed-ranked tests were conducted to test H1A, B, and C. According to the Wilcoxon signed-rank tests, the prompted-agreement interface produced a significantly higher median rank than the open messaging interface ($Z = -2.401, p = .016$), having produced smaller differences in impact ratings for 14 of the 23 female users and having tied for 6 of the female users. This provides support for H1C. The prompted-disagreement interface also produced a significantly higher median rank than the open messaging interface ($Z = -2.358, p = .018$), having produced smaller

differences in impact ratings for 13 of the 23 female users and having tied for 6 of the female users. This provides support for H1B. There was not a significant median difference in rankings for the prompted-agreement and prompted-disagreement interfaces, meaning there is no support for H1A.

Table 11.14 Results for Women Regarding H1—Difference in Enjoyment of Messaging Interaction and Face-to-Face Interaction (Impact Rating Operationalization)

H1	Difference in enjoyment of messaging and F-to-F interaction Prompted-disagreement < Prompted-agreement < Open messaging
Supported?	No
Results	Prompted-agreement < Prompted-disagreement < Open messaging (median rank: 1) (median rank: 2) (median rank: 3)
H1A	Prompted-disagreement < Prompted-agreement
Supported?	No
Results	$Z = -.338, p = .735$
H1B	Prompted-disagreement < Open messaging
Supported?	Yes
Results	$Z = -2.358, p = .018$
H1C	Prompted-agreement < Open messaging
Supported?	Yes
Results	$Z = -2.401, p = .016$

The second operationalization for enjoyment of interaction was the “enjoyment of interaction” index from the Rochester Interaction Record [183], which included four 7-point Likert scale questions regarding quality/pleasantness of the interaction, degree of closeness during the interaction, satisfaction with the interaction, and expectations from the interaction. According to the Friedman test for female users, there was a statistically significant difference in “enjoyment of interaction” differentials (between messaging interaction and face-to-face speed date interaction) depending on which messaging interface was used, $\chi^2(2) = 6.422, p = 0.040$. Distributions of ranks for the messaging

interfaces are depicted in the tables below. Median ranks for the messaging interfaces went against expectations—the prompted-agreement interface was ranked #1, followed by the prompted-disagreement interface and the open messaging interface, which both had a median rank of 2. Hence H1 is not supported for the “enjoyment of interaction” index operationalization.

Since the Friedman test indicated a significant difference in the distribution of ranks between the interfaces, Wilcoxon signed-ranked tests were conducted to test H1A, B, and C. According to the Wilcoxon signed-rank test, the prompted-agreement interface produced a significantly higher median rank than the open messaging interface ($Z = -3.154, p = .002$), having produced smaller differences in enjoyment of interaction for 19 of the 23 female users. This provides support for H1C. The other interface pairings were not significantly different, which means there is no support for H1A or H1B.

Table 11.15 Results for Women Regarding H1—Difference in Enjoyment of Messaging Interaction and Face-to-Face Interaction (“Enjoyment of Interaction” Index Operationalization)

H1	Difference in enjoyment of messaging and F-to-F interaction Prompted-disagreement < Prompted-agreement < Open messaging
Supported?	No
Results	Prompted-agreement < Prompted-disagreement = Open messaging (median rank: 1) (median rank: 2) (median rank: 2)
H1A	Prompted-disagreement < Prompted-agreement
Supported?	No
Results	$Z = -1.289, p = .197$
H1B	Prompted-disagreement < Open messaging
Supported?	No
Results	$Z = -1.575, p = .115$
H1C	Prompted-agreement < Open messaging
Supported?	Yes
Results	$Z = -3.154, p = .002$

Ultimately, H1 for women was not supported under either of the two operational definitions for enjoyment of interaction because the prompted-agreement interface—not the prompted-disagreement interface—tended to produce the smallest differences in enjoyment of messaging and face-to-face interaction. In regards to the sub-hypotheses, H1C received support under both operational definitions of enjoyment of interaction, and H1B received support under the “impact rating” operationalization, but not the “enjoyment of interaction” index operationalization. H1A did not receive support under either operational definition.

One explanation for these results for women could be that the prompted-agreement interface simply made messaging interaction and subsequent face-to-face interaction more enjoyable as a result of an agreement of opinion being prominently displayed in the messaging interface (creating a self-fulfilling prophecy, so to speak, where users expect enjoyable interactions by virtue of awareness of the agreement of opinion). To test this alternative explanation, Friedman tests were conducted to see if the three messaging interfaces differed in regards to enjoyment of messaging interactions. If so, a Friedman test would then be run to see if enjoyment of face-to-face interactions also significantly differed based on the messaging interface that the pair of potential partners originally interacted through. The Friedman tests for enjoyment of messaging interaction were not significant ($\chi^2(2) = .506, p = .776$ for the “impact ratings” operationalization; $\chi^2(2) = .348, p = .840$ for the “enjoyment of interaction” index operationalization). This result provides no evidence for the alternative explanation of H1 that the prompted-agreement interface yielded a significantly higher median rank than the open messaging

interface simply because it yielded more enjoyable interactions across messaging and face-to-face contexts.

11.7.3.1.2 Hypothesis 1 Results for Men. When testing H1 for male users, Friedman tests indicated that there was not a statistically significant difference in enjoyment of interaction differentials for impact ratings ($\chi^2(2) = .857, p = .651$) or the enjoyment of interaction index ($\chi^2(2) = .568, p = .753$). Likewise, median rankings for the interfaces did not differ under either operational definition of enjoyment of interaction. Hence H1 received no support for men under either operational definition of enjoyment of interaction. As would be expected from the Friedman test result, none of the Wilcoxon signed-ranks tests comparing the interfaces were significant, which means H1A, B, and C are not supported.

Table 11.16 Results for Men Regarding H1—Difference in Enjoyment of Messaging Interaction and Face-to-Face Interaction (Impact Rating Operationalization)

H1	Difference in enjoyment of messaging and F-to-F interaction Prompted-disagreement < Prompted-agreement < Open messaging
Supported?	No
Results	Prompted-disagreement = Prompted-agreement = Open messaging (median rank: 2) (median rank: 2) (median rank: 2)
H1A	Prompted-disagreement < Prompted-agreement
Supported?	No
H1A Results	$Z = -.760, p = .447$
H1B	Prompted-disagreement < Open messaging
Supported?	No
H1B Results	$Z = -.461, p = .645$
H1C	Prompted-agreement < Open messaging
Supported?	No
H1C Results	$Z = -.724, p = .469$

Table 11.17 Results for Men Regarding H1—Difference in Enjoyment of Messaging Interaction and Face-to-Face Interaction (“Enjoyment of Interaction” Index Operationalization)

H1	Difference in enjoyment of messaging and F-to-F interaction Prompted-disagreement < Prompted-agreement < Open messaging
Supported?	No
Results	Prompted-disagreement = Prompted-agreement = Open messaging (median rank: 2) (median rank: 2) (median rank: 2)
H1A	Prompted-disagreement < Prompted-agreement
Supported?	No
Results	$Z = -.078, p = .938$
H1B	Prompted-disagreement < Open messaging
Supported?	No
Results	$Z = -.791, p = .429$
H1C	Prompted-agreement < Open messaging
Supported?	No
Results	$Z = -.808, p = .419$

11.7.3.2 Results for Hypothesis 2. The second hypothesis was as follows:

H2: Desire for a regular date after messaging interaction through the prompted-disagreement interface will most accurately predict desire for a regular date after an initial face-to-face interaction with a respective potential romantic partner, followed by the prompted-agreement interface, and then followed by the open messaging interface.

(Difference in desire for a date after messaging and F-to-F interaction:

Prompted-disagreement < Prompted-agreement < Open messaging)

In addition, it was hypothesized that the messaging interfaces would individually differ from one another in the following ways.

H2A: The prompted-disagreement interface will produce significantly smaller differences in desire to go on a regular date after a messaging interaction and after an initial face-to-face interaction than the prompted-agreement interface.

(Difference in desire for a date after messaging and F-to-F interaction:

Prompted-disagreement < Prompted-agreement)

H2B: The prompted-disagreement interface will produce significantly smaller differences in desire to go on a regular date after a messaging interaction and after an initial face-to-face interaction than the open messaging interface.

(Difference in desire for a date after messaging and F-to-F interaction:

Prompted-disagreement < Open messaging)

H2C: The prompted-agreement interface will produce significantly smaller differences in desire to go on a regular date after a messaging interaction and after an initial face-to-face interaction than the open messaging interface.

(Difference in desire for a date after messaging and F-to-F interaction:

Prompted-agreement < Open messaging)

To test these hypotheses, desire for a regular date was operationalized with a 7-point Likert scale question: *"If I had to make a choice right now, I would choose to go on a date with this person."*

Differences in desire for a regular date after messaging interaction and after subsequent face-to-face speed date interaction were computed as the absolute value of the difference between scores. For example, if Bob selected 6 - “Agree moderately” to the question “*If I had to make a choice right now, I would choose to go on a date with this person*” after a messaging interaction with Sarah, and then answered 3 - “Disagree a little” to the same question after a subsequent face-to-face speed date interaction with Sarah, the difference in desire for a regular date as an absolute value would be 3.

When rank ordering the messaging interfaces for each user, the interface that yielded the smallest difference in desire for a regular date was ranked #1, and the interface yielding the largest difference was ranked last.

The data was first tested for the potential confounding effect of physical attractiveness. Could differences in desire for a regular date after messaging (and thus the difference with desires after the face-to-face speed date) be explained by disparities in the attractiveness of potential romantic partners’ pictures? To assess this, a Friedman test was run to see if the messaging interface conditions differed significantly based on desires for a regular date after only viewing the potential romantic partner’s profile page (before the messaging interaction). Neither Friedman test was significant ($\chi^2(2) = 2.482, p = .289$ for female users; $\chi^2(2) = 2.571, p = .276$ for male users), meaning there is no evidence that the results for this hypothesis were confounded by disparities in physical attractiveness.

Next, a Friedman test was run on the actual dependent variable: the difference in desire for a regular date after a messaging interaction and after a face-to-face speed date interaction.

11.7.3.2.1 Hypothesis 2 Results for Women. According to the Friedman test for female users, there was a statistically significant difference in this variable depending on which messaging interface was used, $\chi^2(2) = 9.596, p = 0.008$. Median ranks for the messaging interfaces went against expectations—the prompted-agreement interface was ranked #1, followed by the prompted-disagreement interface, and then the open messaging interface. Hence H2 is not supported for women.

Since the Friedman test indicated a significant difference in the distribution of ranks between the interfaces, Wilcoxon signed-ranked tests were conducted to test H2A, B, and C. According to the Wilcoxon signed-rank tests, the prompted-agreement interface produced a significantly higher median rank than the open messaging interface ($Z = -2.691, p = .007$), having produced smaller differences in desire for a regular date for 18 out of the 23 female users. This provides support for H2C. Differences between the other interface pairings were not significant, meaning H2A and H2B were not supported.

Table 11.18 Results for Women Regarding H2—Difference in Desire for a Regular Date After Messaging and After Face-to-Face Meeting

H2	Difference in desire for a date after messaging and F-to-F interaction Prompted-disagreement < Prompted-agreement < Open messaging
Supported?	No
Results	Prompted-agreement < Prompted-disagreement < Open messaging (median rank: 1) (median rank: 2) (median rank: 3)
H2A	Prompted-disagreement < Prompted-agreement
Supported?	No
Results	$Z = -1.566, p = .117$
H2B	Prompted-disagreement < Open messaging
Supported?	No
Results	$Z = -1.746, p = .081$
H2C	Prompted-agreement < Open messaging
Supported?	Yes
Results	$Z = -2.691, p = .007$

Ultimately, H2 was not supported for women because the prompted-agreement interface—not the prompted-disagreement interface—tended to produce the smallest differences in desires for a regular date after messaging interaction and after face-to-face interaction. In regards to the sub-hypotheses, H2C received support, but H2A and H2B did not.

One explanation for the H2 results for women could be that the prompted-agreement interface simply yielded more desire for a regular date with a potential romantic partner after messaging interaction and face-to-face interaction as a result of an agreement of opinion being prominently displayed in the messaging interface (which would have created expectations of compatibility with the potential partner). To test this alternative explanation, a Friedman test was conducted to see if the three messaging interfaces differed in regards to desire for a regular date after messaging interactions. The

Friedman test was not significant ($\chi^2(2) = 2.127, p = .345$). This result provides no evidence that the prompted-agreement interface produced a significantly higher median rank than the open messaging interface simply because it yielded more desire for a date in messaging and face-to-face contexts.

11.7.3.2.2 Hypothesis 2 Results for Men. When testing H2 for male users, the Friedman test for differentials in desire for a regular date after messaging and after a face-to-face speed date reported a statistically significant difference depending on which messaging interface was used, $\chi^2(2) = 6.418, p = 0.040$. Median ranks for the messaging interfaces went against expectations—the open messaging interface had the highest ranking (1.5), followed by the prompted-disagreement interface and prompted-agreement interface (both with a median ranking of 2). Hence H1 is not supported for male users.

Since the Friedman test indicated a significant difference in the distribution of ranks between the interfaces, Wilcoxon signed-ranked tests were conducted to test H2A, B, and C. According to the Wilcoxon signed-rank tests, the open messaging interface produced a significantly higher median rank than the prompted-agreement interface ($Z = -2.618, p = .009$), having produced smaller differences in desires for a regular date for 17 of the 24 male users. While this result is significant, it is against expectations of H1C. Hence H2C is not supported. Differences between the other interface pairings were not significant, meaning H2A and H2B did not receive support.

Table 11.19 Results for Men Regarding H2—Difference in Desire For a Regular Date After Messaging and After Face-to-Face Meeting

H2	Difference in desire for a date after messaging and F-to-F interaction Prompted-disagreement < Prompted-agreement < Open messaging
Supported?	No
Results	Open messaging < Prompted-disagreement = Prompted-agreement (median rank: 1.5) (median rank: 2) (median rank: 2)
H2A	Prompted-disagreement < Prompted-agreement
Supported?	No
Results	$Z = -1.008, p = .313$
H2B	Prompted-disagreement < Open messaging
Supported?	No
Results	$Z = -1.377, p = .168$
H2C	Prompted-agreement < Open messaging
Supported?	No
Results	$Z = -2.618, p = .009$ (Open messaging < Prompted-agreement)

Ultimately, H2 was not supported for men because the open messaging interface—not the prompted-disagreement interface—tended to produce the smallest differences in desires for a regular date after messaging interaction and after face-to-face interaction. None of the sub-hypotheses were supported, although the Wilcoxon signed-rank test for H2C did produce a significant result that went against expectations.

One explanation for the statistically significant result that the open messaging interface produced a higher median rank than the prompted-agreement interface could be that the prompted-agreement interface yielded more desire for a regular date after a messaging interaction by virtue of an agreement of opinion being emphasized in the interface, and that such a high level of enjoyment was not maintained during face-to-face speed dates where an agreement of opinion was not prominently visible. To test this explanation, a Friedman test was conducted to see if the three messaging interfaces differed in regards to desire for a regular date after messaging interaction. The Friedman

test was not significant ($\chi^2(2) = .897, p = .639$), providing no support for this explanation.

11.7.3.3 Results for Hypothesis 3. The third hypothesis indicated the following:

H3: The prompted-disagreement interface will produce the most confidence in desires for a regular date after messaging interactions, followed by the prompted-agreement interface, and then followed by the open messaging interface.

(Confidence in desire for a date after messaging interaction:

Prompted-disagreement > Prompted-agreement > Open messaging)

In addition, it was hypothesized that the messaging interfaces would individually differ from one another in the following ways.

H3A: The prompted-disagreement interface will produce significantly more confidence in desire to go on a regular date after a messaging interaction than the prompted-agreement interface.

(Confidence in desire for a date after messaging interaction:

Prompted-disagreement > Prompted-agreement)

H3B: The prompted-disagreement interface will produce significantly more confidence in desire to go on a regular date after a messaging interaction than the open messaging interface.

(Confidence in desire for a date after messaging interaction:

Prompted-disagreement > Open messaging)

H3C: The prompted-agreement interface will produce significantly more confidence in desire to go on a regular date after a messaging interaction than the open messaging interface.

(Confidence in desire for a date after messaging interaction:

Prompted-agreement > Open messaging)

To test these hypotheses, confidence in desire for a regular date after messaging was operationalized with a 7-point Likert scale question: "I am very confident that I would answer the previous question the same way after meeting this person face-to-face for a speed date at this event."

When rank ordering the messaging interfaces for each user, the interface that yielded the most confidence was ranked #1, and the interface yielding the least confidence was ranked last.

The data was first tested for the potential confounding effect of physical attractiveness. Could differences in confidence in desire for a regular date after messaging be explained by disparities in the attractiveness of potential romantic partners' pictures? To assess this, a Friedman test was run to see if the messaging interfaces

differed significantly based on confidence in desire for a regular date after only viewing the potential romantic partner's profile page. Neither Friedman test was significant ($\chi^2(2) = 2.333, p = .311$ for women; $\chi^2(2) = .100, p = .951$ for men), meaning there is no evidence that the results for this hypothesis were confounded by disparities in physical attractiveness.

According to the Friedman tests for confidence in desires for a regular date after messaging, there was not a statistically significant difference for male users or female users depending on the message interface ($\chi^2(2) = .177, p = .915$ for female users, $\chi^2(2) = .481, p = .786$ for male users). Likewise, the median ranks of the interfaces for women were identical (all had a median rank of 2), and for the men the median ranks for the prompted-agreement interface and the open messaging interface did not differ. Hence H3 was not supported for each gender. Because the Friedman tests were not statistically significant, this means H1A, B, and C are not supported for either gender. As would be expected from the Friedman test results, none of the Wilcoxon signed-ranks tests comparing the interfaces were significant for either gender, which means H1A, B, and C are not supported.

Table 11.20 Results for Women Regarding H3—Confidence in Desire for a Regular Date After Messaging

H3	Confidence in desire for a date after messaging interaction Prompted-disagreement < Prompted-agreement < Open messaging
Supported?	No
Results	Prompted-disagreement = Prompted-agreement = Open messaging (median rank: 2) (median rank: 2) (median rank: 2)
H3A	Prompted-disagreement < Prompted-agreement
Supported?	No
Results	$Z = -.147, p = .883$
H3B	Prompted-disagreement < Open messaging
Supported?	No
Results	$Z = -.735, p = .462$
H3C	Prompted-agreement < Open messaging
Supported?	No
Results	$Z = -.512, p = .609$

Table 11.21 Results for Men Regarding H3—Confidence in Desire for a Regular Date After Messaging

H3	Confidence in desire for a date after messaging interaction Prompted-disagreement < Prompted-agreement < Open messaging
Supported?	No
Results	Prompted-disagreement < Prompted-agreement = Open messaging (median rank: 1) (median rank: 2) (median rank: 2)
H3A	Prompted-disagreement < Prompted-agreement
Supported?	No
Results	$Z = -.473, p = .636$
H3B	Prompted-disagreement < Open messaging
Supported?	No
Results	$Z = -.275, p = .783$
H3C	Prompted-agreement < Open messaging
Supported?	No
Results	$Z = -.167, p = .867$

11.7.3.4 Summary of Quantitative Results. This section summarizes results for the hypotheses. Because of gender differences, summaries of results are reported for men and women separately.

Table 11.22 Results for Women Regarding H1—Difference in Enjoyment of Messaging Interaction and Face-to-Face Interaction (Impact Rating Operationalization)

H1	Difference in enjoyment of messaging and F-to-F interaction Prompted-disagreement < Prompted-agreement < Open messaging
Supported?	No
Results	Prompted-agreement < Prompted-disagreement < Open messaging (median rank: 1) (median rank: 2) (median rank: 3)
H1A	Prompted-disagreement < Prompted-agreement
Supported?	No
Results	$Z = -.338, p = .735$
H1B	Prompted-disagreement < Open messaging
Supported?	Yes
Results	$Z = -2.358, p = .018$
H1C	Prompted-agreement < Open messaging
Supported?	Yes
Results	$Z = -2.401, p = .016$

Table 11.23 Results for Women Regarding H1—Difference in Enjoyment of Messaging Interaction and Face-to-Face Interaction (“Enjoyment of Interaction” Index Operationalization)

H1	Difference in enjoyment of messaging and F-to-F interaction Prompted-disagreement < Prompted-agreement < Open messaging
Supported?	No
Results	Prompted-agreement < Prompted-disagreement = Open messaging (median rank: 1) (median rank: 2) (median rank: 2)
H1A	Prompted-disagreement < Prompted-agreement
Supported?	No
Results	$Z = -1.289, p = .197$
H1B	Prompted-disagreement < Open messaging
Supported?	No
Results	$Z = -1.575, p = .115$
H1C	Prompted-agreement < Open messaging
Supported?	Yes
Results	$Z = -3.154, p = .002$

Table 11.24 Results for Women Regarding H2—Difference in Desire for a Regular Date After Messaging and After Face-to-Face Meeting

H2	Difference in desire for a date after messaging and F-to-F interaction Prompted-disagreement < Prompted-agreement < Open messaging
Supported?	No
Results	Prompted-agreement < Prompted-disagreement < Open messaging (median rank: 1) (median rank: 2) (median rank: 3)
H2A	Prompted-disagreement < Prompted-agreement
Supported?	No
Results	$Z = -1.566, p = .117$
H2B	Prompted-disagreement < Open messaging
Supported?	No
Results	$Z = -1.746, p = .081$
H2C	Prompted-agreement < Open messaging
Supported?	Yes
Results	$Z = -2.691, p = .007$

Table 11.25 Results for Women Regarding H3—Confidence in Desire for a Regular Date after Messaging

H3	Confidence in desire for a date after messaging interaction Prompted-disagreement < Prompted-agreement < Open messaging
Supported?	No
Results	Prompted-disagreement = Prompted-agreement = Open messaging (median rank: 2) (median rank: 2) (median rank: 2)
H3A	Prompted-disagreement < Prompted-agreement
Supported?	No
Results	$Z = -.147, p = .883$
H3B	Prompted-disagreement < Open messaging
Supported?	No
Results	$Z = -.735, p = .462$
H3C	Prompted-agreement < Open messaging
Supported?	No
Results	$Z = -.512, p = .609$

Table 11.26 Results for Men Regarding H1—Difference in Enjoyment of Messaging Interaction and Face-to-Face Interaction (Impact Rating Operationalization)

H1	Difference in enjoyment of messaging and F-to-F interaction Prompted-disagreement < Prompted-agreement < Open messaging
Supported?	No
Results	Prompted-disagreement = Prompted-agreement = Open messaging (median rank: 2) (median rank: 2) (median rank: 2)
H1A	Prompted-disagreement < Prompted-agreement
Supported?	No
H1A Results	$Z = -.760, p = .447$
H1B	Prompted-disagreement < Open messaging
Supported?	No
H1B Results	$Z = -.461, p = .645$
H1C	Prompted-agreement < Open messaging
Supported?	No
H1C Results	$Z = -.724, p = .469$

Table 11.27 Results for Men Regarding H1—Difference in Enjoyment of Messaging Interaction and Face-to-Face Interaction (“Enjoyment of Interaction” Index Operationalization)

H1	Difference in enjoyment of messaging and F-to-F interaction Prompted-disagreement < Prompted-agreement < Open messaging
Supported?	No
Results	Prompted-disagreement = Prompted-agreement = Open messaging (median rank: 2) (median rank: 2) (median rank: 2)
H1A	Prompted-disagreement < Prompted-agreement
Supported?	No
Results	$Z = -.078, p = .938$
H1B	Prompted-disagreement < Open messaging
Supported?	No
Results	$Z = -.791, p = .429$
H1C	Prompted-agreement < Open messaging
Supported?	No
Results	$Z = -.808, p = .419$

Table 11.28 Results for Men Regarding H2—Difference in Desire for a Regular Date After Messaging and After Face-to-Face Meeting

H2	Difference in desire for a date after messaging and F-to-F interaction Prompted-disagreement < Prompted-agreement < Open messaging
Supported?	No
Results	Open messaging < Prompted-disagreement = Prompted-agreement (median rank: 1.5) (median rank: 2) (median rank: 2)
H2A	Prompted-disagreement < Prompted-agreement
Supported?	No
Results	$Z = -1.008, p = .313$
H2B	Prompted-disagreement < Open messaging
Supported?	No
Results	$Z = -1.377, p = .168$
H2C	Prompted-agreement < Open messaging
Supported?	No
Results	$Z = -2.618, p = .009$ (Open messaging < Prompted-agreement)

Table 11.29 Results for Men Regarding H3—Confidence in Desire for a Regular Date After Messaging

H3	Confidence in desire for a date after messaging interaction Prompted-disagreement < Prompted-agreement < Open messaging
Supported?	No
Results	Prompted-disagreement < Prompted-agreement = Open messaging (median rank: 1) (median rank: 2) (median rank: 2)
H3A	Prompted-disagreement < Prompted-agreement
Supported?	No
Results	$Z = -.473, p = .636$
H3B	Prompted-disagreement < Open messaging
Supported?	No
Results	$Z = -.275, p = .783$
H3C	Prompted-agreement < Open messaging
Supported?	No
Results	$Z = -.167, p = .867$

11.8 Limitations of Quantitative Results

There are some limitations to the quantitative results of this study (and the methodology that yielded those results) that should be noted. For one, due to the way in which daters were designated to participate in the quantitative or qualitative component of the study (the first eight daters for each gender to arrive at the dating event were assigned to the quantitative component), participants in the quantitative component may have been more conscientious than those in the qualitative component based on their tendency to arrive at the speed dating event earlier.

In addition, users of the online dating system were aware that they were being monitored by research assistants. This may have produced behavior when using the messaging interfaces that could vary from how users may have used the messaging

interfaces in an unmonitored setting. In addition, users engaged in messaging interactions with—and subsequently met face-to-face with—potential romantic partners that they may have rejected earlier in the online dater evaluation process if they had a choice. If users had mentally “written off” a potential partner in their head prior to the face-to-face speed dates, their behavior while using the online dating system could have changed. In addition, profile page content in this study’s online dating system was quite sparse compared to typical profile pages “in the wild.” Considering a common messaging strategy found in studies 1 and 2 is to mention content from profile pages in introductory messages, users in this study may have been unable to enact a strategy they are most accustomed to using in an open messaging interface. Related to this, messaging interactions in this study were largely synchronous; there were no extended delays between messages during which users could have strategized their message content. As such, the amount of time users took to deliberate and decide on their message responses in this study was likely much shorter than the time they typically take to decide on message content “in the wild” where they do not have time constraints.

In addition, there is the possibility that users did not adhere to the instructions provided to them in the messaging interfaces. Messaging interactions around the first-date conflict stories could have deviated into other topics, and interactions through the open messaging interface could have discussed matters similar to the first-date conflict stories. These deviations were unlikely though because users were instructed before every messaging round to adhere to the instructions in the messaging interface as much as possible and to not discuss conversations they had with other daters.

And lastly, there were particular limitations to the surveys because of the study design. Because users were interacting with several potential romantic partners through the night, the surveys were inherently limited in the number of questions that could be asked so not to incur participant fatigue and to ensure users had enough time to answer all of the questions. This prevented the addition of survey questions to probe into attribution theory, for example, and the variety of traits that may have been signaled through messaging interactions.

11.9 Discussion

The objective of this study was to assess novel messaging interfaces for online dating systems in their ability to help users make successful in-person meeting decisions by way of having messaging interactions that are similarly enjoyable to subsequent face-to-face interactions.

This study collected quantitative data regarding three variations of a messaging interface in an online dating system—an open messaging interface (in which users discuss whatever they would like), a prompted-disagreement interface (in which users discuss a first-date conflict story that they disagreed on), and a prompted-agreement interface (in which users discuss a first-date conflict story that they agreed on).

Quantitative data was obtained from daters who used all three messaging interface variations to interact with potential romantic partners online before meeting them face-to-face for short “speed dates” at a dating event in a New York City bar. This procedure produced data about how the messaging interface variations differed in regards to 1) differences in enjoyment of messaging interactions and subsequent face-to-face

interactions during short “speed dates,” 2) differences in desires for a regular date with a potential romantic partner after a messaging interaction and a subsequent face-to-face speed date, and 3) confidence in desires to go on a regular date after messaging interaction.

It was hypothesized that enjoyment of messaging interactions through the prompted-disagreement interface would best predict enjoyment of subsequent face-to-face interactions. It was also hypothesized that desires for a regular date after messaging interactions through the prompted-disagreement interface would most accurately predict desires for a regular date after face-to-face interaction. By extension of these benefits, it was expected that the prompted-disagreement interface would also yield the most confidence in desires for a regular date after messaging interaction.

Quantitative analysis resulted in several statistically significant findings, but they were not as expected. For one, there were stark gender differences in how the messaging interface variations affected online dater evaluation.

For female users, the prompted-agreement interface consistently performed the best. When comparing interfaces, the prompted-agreement interface produced significantly smaller differences in enjoyment of messaging and face-to-face interactions than the open messaging interface. The prompted-agreement interface also produced significantly smaller differences than the open messaging interface in regards to desires for a regular date between messaging interaction and face-to-face interaction. The prompted-agreement interface did not, however, significantly differ from any of the other interfaces in regards to confidence in desires for a regular date after messaging. This

suggests that the beneficial effects of the prompted-agreement interface on women's in-person meeting decisions did not translate into higher confidence in those decisions.

The prompted-disagreement interface did not perform as expected for women. It consistently ranked behind the prompted-agreement interface and it significantly outranked the open messaging interface for only one dependent variable—it yielded significantly smaller differences in “impact ratings” of a partner's statements during messaging and face-to-face interaction.

For men, the prompted-disagreement interface also did not perform as expected. The messaging interfaces did not differ from one another in regards to differences between enjoyment of messaging and face-to-face interaction, or in regards to confidence in desires for a regular date after messaging. The open messaging interface was actually best at producing desire for a regular date after messaging that matched such desires after a face-to-face interaction. When comparing interfaces, the open messaging interface produced desires for a regular date that were significantly closer to desires for a regular date after face-to-face interaction than the prompted-agreement interface.

These quantitative results are discussed in more detail in the next chapter, in which the quantitative results are interpreted and explained in light of the qualitative findings regarding daters' personal reactions to the messaging interface variations.

11.10 Summary

This chapter presented the quantitative component of study 3 of this dissertation, which entailed a mixed methods field study of three variations of a messaging interface for online dating systems in how they support online dater evaluation. These messaging

interface variations included the prompted-disagreement interface (in which users discuss a first-date conflict story that they disagreed on), the prompted-agreement interface (in which users discuss a first-date conflict story that they agreed on), and the open messaging interface (in which users can discuss whatever they would like; i.e., the typical messaging interface in online dating systems).

The prompted-disagreement interface was expected to perform best for users, but results were not as expected. For one, quantitative data from the study indicated gender differences in reactions to the interfaces. The prompted-disagreement interface did not perform best according to any metric of online dater evaluation. However, results for women indicated that a prompted-agreement messaging interface would better support them in making in-person meeting decisions that are considered successful (i.e., culminate in a desire for a second meeting) than the open messaging interface typical in today's online dating systems. In line with behavioral theory, the prompted-agreement interface also yielded messaging interactions for women that were more similarly enjoyable to subsequent face-to-face interactions than the open messaging interface. The prompted-agreement interface did not similarly support men, and actually worsened their in-person meeting decisions compared to the open messaging interface.

The next chapter uses findings from qualitative assessment of the messaging interfaces to gain deeper understanding of these quantitative results.

CHAPTER 12

STUDY 3: MIXED METHODS FIELD STUDY OF RESEARCH ARTIFACT (QUALITATIVE COMPONENT)

12.1 Introduction

This chapter presents the qualitative component of a mixed methods field study of three variations of a messaging interface for online dating systems. These variations include the standard, open messaging interface that is typically included in today's online dating systems, along with two newly designed interfaces: the prompted-disagreement interface (in which users discuss a first-date conflict story that they disagreed on), and the prompted-agreement interface (in which users discuss a first-date conflict story that they agreed on). The goals of the qualitative component of the study were to gauge user reactions to the prompted messaging interfaces in relation to the standard, open messaging interface in ways that would not be possible or as nuanced through quantitative assessment.

After presenting findings from user reactions to the messaging interfaces, insights from the quantitative and qualitative assessment of the messaging interfaces are discussed in conjunction. Specifically, user reactions to the messaging interfaces are leveraged to provide interpretation and deeper understanding of results from the quantitative assessment of the messaging interfaces. The chapter concludes by posing avenues for future work and implications for online dating system design.

12.2 Research Questions

The qualitative component of the mixed methods field study is motivated by the following research questions regarding the three messaging interface variations: the prompted-disagreement interface, the prompted-agreement interface, and the open messaging interface. Refer to Section 11.2 in Chapter 11 for descriptions and visual examples of these interfaces.

***RQ1:** Do online dating system users think they would be willing to discuss first-date conflict stories with potential romantic partners if a messaging interface prompted them to do so? Would a disagreement/agreement of opinion change this desire?*

***RQ2:** What evaluation and self-presentation strategies do users think they would adopt if prompted-disagreement and prompted-agreement messaging interfaces were included in online dating systems that they use?*

***RQ3:** Would users prefer the prompted-disagreement and/or prompted-agreement messaging interfaces over an open messaging interface in online dating systems that they use?*

12.3 Method

The above research questions were investigated through focus groups with 35 online daters. As discussed in the previous chapter, these focus group were conducted at four speed dating events at a bar in New York City in conjunction with the quantitative assessment of the messaging interface variations (study 3). Refer to Sub-Section 11.5.3.1 in Chapter 11 for a description for how attendees for the speed dating events were recruited.

There were two activities that occurred concurrently at each speed dating event prior to attendees meeting opposite-sex partners for face-to-face interactions (i.e., “speed dates”). Some daters used an online dating system accessible through laptops at the bar to evaluate potential romantic partners (ones they would later meet face-to-face) through variations of a messaging interface—this comprised the quantitative component of the study (Chapter 11). At the same time while daters were using the online dating system, other daters at the bar participated in focus groups that gauged their personal reactions to mockups depicting the same messaging interface variations—this comprised the qualitative component of the study (this chapter).

There were a limited number of laptop computers for participants in study 3 to access the online dating system at the bar (16 computers in total; 8 for men and 8 for women). Since it was anticipated that some registered daters for the speed dating events would not actually attend, each speed dating event intentionally registered double the amount of daters that could use the laptop computers (a total of 16 men and 16 women registered for each event). The first eight daters of either gender to arrive at the speed dating event were assigned to use the online dating system. Excess daters beyond eight for a respective gender to arrive at the event were assigned to participate in the focus groups. There was a separate male focus group and female focus group at each speed dating event; this separation was intended to encourage daters to speak freely about their struggles with online dating and their reactions to the messaging interfaces without fear of a negative reaction from opposite-sex daters in whom they may be romantically interested.

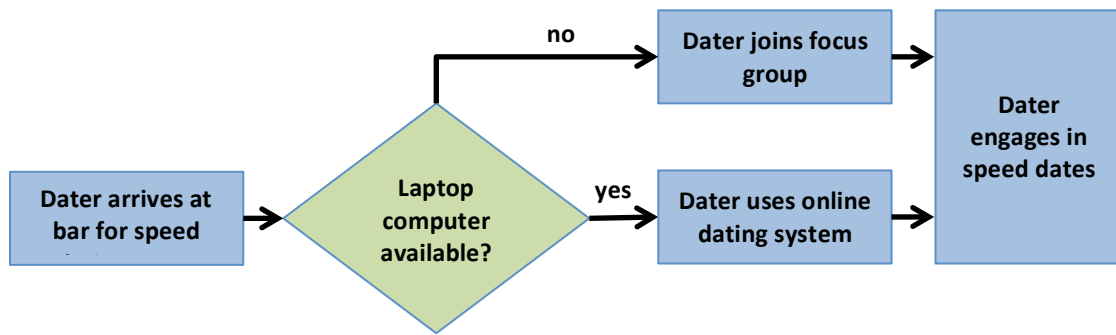


Figure 12.1 A given dater that arrived at a speed dating event participated in either a focus group *or* use of the online dating system before engaging in face-to-face speed dates.

12.3.1 Focus Group Participants

There were 35 daters (19 men, 16 women) that participated in focus groups at the speed dating events. All of the attendees of the first speed dating event participated in focus groups because the online dating system had crashed at the start of the event. Event 3 had one excess woman (beyond eight that had access to a laptop), and event 4 had one excess man. These daters were interviewed one-on-one at their respective events. In total, 37 daters (20 men, 17 women) provided qualitative data regarding their reactions to the messaging interface variations.

Table 12.1 Total Attendees of the Speed dating Events

	Overall	Men	Women
All events (4 total)	85	44	41
Event 1	22	12	10
Event 2	26	12	14
Event 3	20	11	9
Event 4	17	9	8

Table 12.2 Attendees of the Speed Dating Events that Participated in Focus Groups or Interviews

	Overall	Men	Women
All events (4 total)	37	20	17
Event 1	22	12	10
Event 2	10	4	6
Event 3	4	3	1 (interview)
Event 4	1	1 (interview)	0

See additional demographic information for the participants of the qualitative component of the study in the table below.

Table 12.3 Demographic Information for Participants of the Qualitative Component of Study 3

Age	Education	Prior online dating experience
Range: 21-35	1 Doctoral	13 with 1+ years
Mean: 26.47	10 Masters	6 with 7-12 months
Men mean: 26.93	23 Bachelors	10 with 4-6 months
Women mean: 26.06	1 Associates	8 with 1-3 months
	1 Some college	0 with no experience
	1 High school diploma	

12.3.2 Focus Group Procedure

The focus group discussions occurred in rooms that were secluded from where the other attendees were using the online dating system (see Sub-section 11.5.1 in Chapter 11 for a description of the rooms at the bar where the speed dating events occurred). As mentioned earlier, there were separate focus groups for male daters and female daters as the presence of opposite-sex daters in a focus group might influence the manner in which participants discussed online dating. Each focus group had a research assistant of the same gender to guide the discussion.

Once a focus group officially started, the research assistant explained to the focus group participants that the daters would be experiencing the “online dating technology” mentioned in the speed dating event advertisement in different ways—some by using the system directly, while others would engage in discussion about their reactions to the system (see Sub-section 11.5.3.1 in Chapter 11 for a description of the advertisement, and Appendix G for a visual depiction of the advertisement). It was emphasized to the focus group participants that they would still meet opposite sex daters during the event. Focus group participants were then told that the discussion would be audio-recorded, to which all agreed. Daters that arrived late to the focus group discussion were informed of the audio recording when they arrived.

Focus group participants were first asked to discuss their prior experiences with online dating systems, mostly as a way to get all of the participants comfortable enough to discuss online dating in front of the other same-sex daters and to give late arrivals enough time to get situated. Once every participant had an opportunity to speak, they were then given the following scenario:

“Imagine you just matched with a man/woman in a popular online dating system. You liked each other’s profile page and the online dating system brings you to the messaging interface to start a conversation. The messaging interface shows you this (researcher assistant shows a print out of a mockup of the screen). What are your reactions?”

This scenario was given three times in the focus group, each time while being shown a different printout of the messaging interface. The first messaging interface shown was the open messaging interface (Figure 12.2) with the username “Jonathan” or

“Angela” (depending on the gender of the focus group participants) and without any profile picture. The research assistant aimed to solicit a response from each participant about their reaction to the interface and strategy for the messaging conversation (e.g., would they send the first message and, if so, how would they craft their message). After the open messaging interface, participants were given the same scenario and shown the prompted-disagreement interface (Figure 12.3) with the same username and were asked the same questions. On the third iteration of the scenario, the prompted-agreement interface was shown (Figure 12.4).

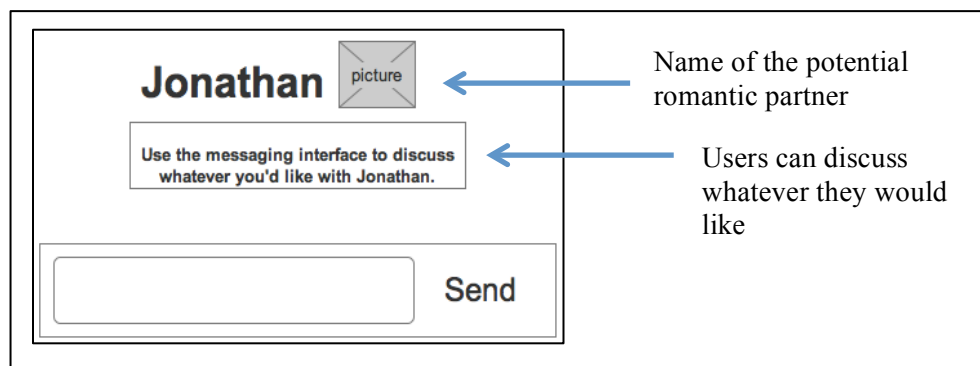


Figure 12.2 The open messaging interface as shown to focus group participants. For the male focus groups, the username was changed to Angela.

When shown either of the prompted interfaces, participants were asked to imagine that the dater they matched with picked the opposite/same opinion choice as them for the respective first-date conflict story. The following first-date conflict story was shown in both the prompted-disagreement and prompted-agreement interfaces.

Tony and Joan just finished their first date. They had an easy-flowing conversation and discovered they have a lot in common. However, Joan, who is 5'3", learned that Tony is actually 5'10"—he had told her before the date that he was 6'1".

This is a deal breaker for Joan—she decides to not go on any more dates with Tony because he lied about his height. Was this a good reason for Joan to reject Tony?

- a. *Yes, Tony’s dishonesty about his height was a good reason for Joan to reject Tony*
- b. *No, Tony’s dishonesty about his height was not a good reason for Joan to reject Tony*

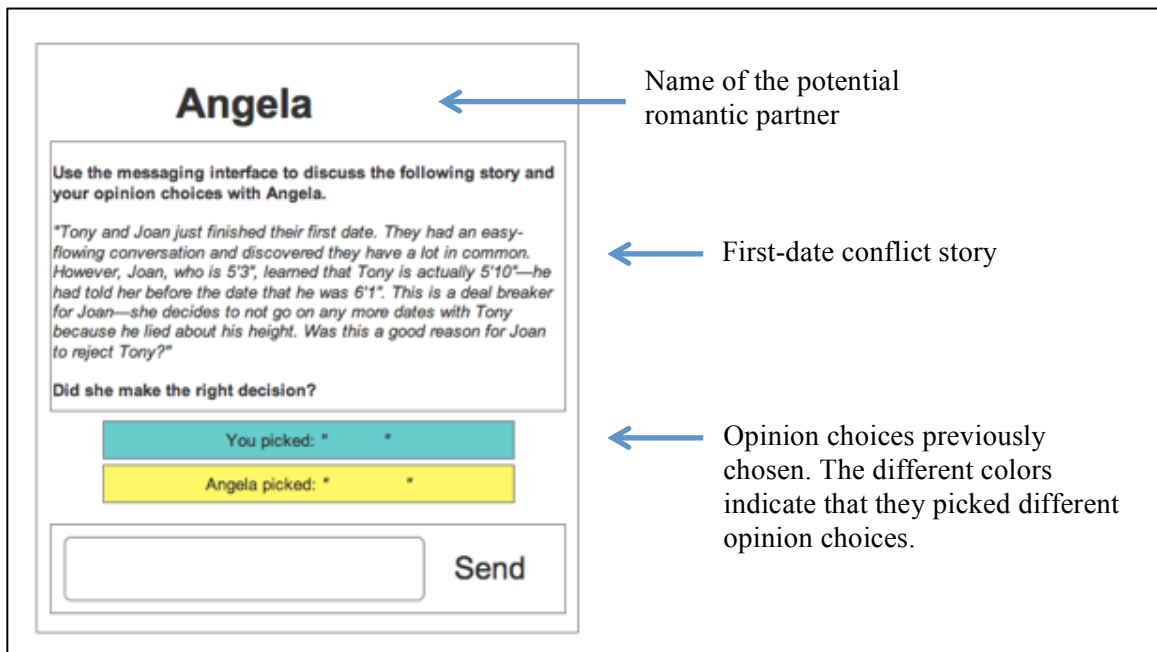


Figure 12.3 An example of the prompted-disagreement messaging interface. The opinion choices were left blank so that each focus group participant could imagine that the potential partner picked the opposite opinion choice from them.

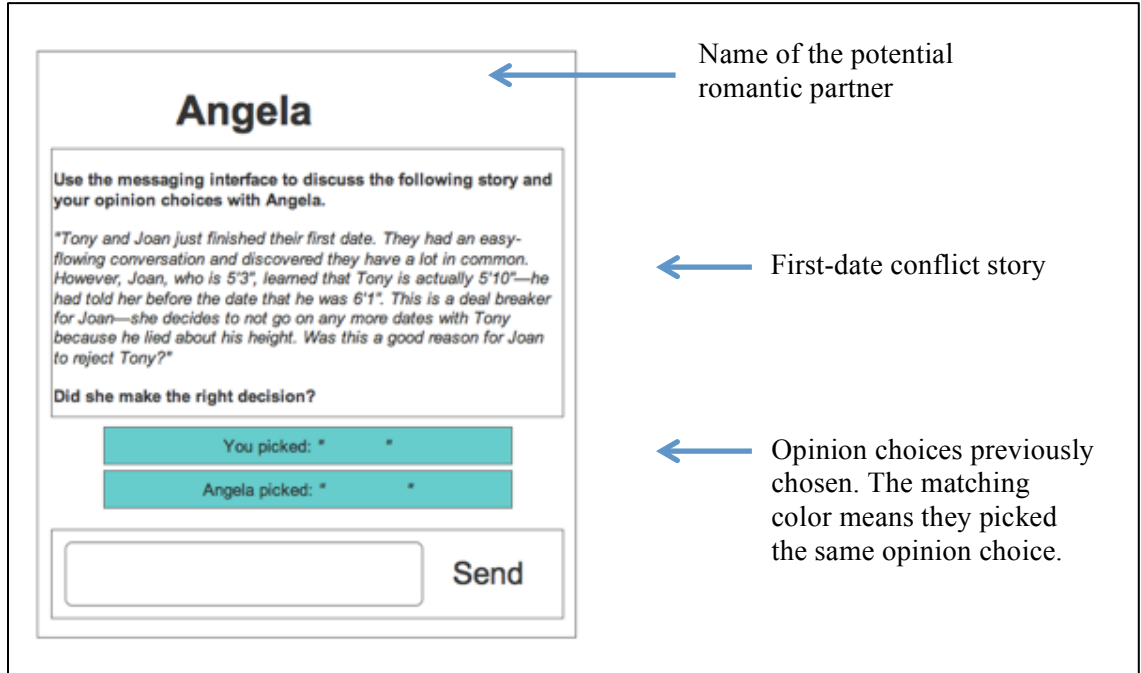


Figure 12.4 An example of the prompted-agreement messaging interface.

The focus group discussion of each interface continued until the research assistant thought the daters exhausted all of their talking points in regards to general reactions to the interface and self-presentation and evaluation strategies for the interface. The entire focus group discussion typically ended around the same time as the daters using the online dating system completed their respective activities.

12.3.3 Data Collection and Analysis

The focus group discussions were audio recorded yielding a total of 151 minutes of audio. Summaries of each focus group were written within 72 hours of the respective speed dating event ending, and the portions of the focus groups pertaining to reactions to the messaging interface variations were transcribed. An open coding process was

performed on the data to detect emerging themes regarding participant reactions to each messaging interface variation [204].

12.4 Findings from Focus Groups

Findings from the focus groups are organized below according to this study's research questions (see Section 11.3.4). Representative quotes are provided, although participants' names have been changed for privacy.

12.4.1 Willingness to Discuss First-Date Conflict Stories

RQ1 had asked: *Do users think they would be willing to discuss the first-date conflict stories with potential romantic partners if a messaging interface prompted them to do so? Would a disagreement/agreement of opinion change this desire?*

When shown the messaging interfaces that prompt users to discuss a first-date conflict story, male participants were generally open to, and even enthusiastic about, discussing the stories because such stories alleviated the need for them to decide on their own conversation topics. As Robert explained, *"it saves me a bit of work. [...] What should I talk about? With this, I don't have to think about it."*

In regards to the prompted-disagreement messaging interface more specifically, some of the male participants seemed genuinely curious about the basis for disagreements of opinion. Daniel said, *"well I kind of want to know. Why did you pick [that opinion choice]? [...] Even if it doesn't work out between us, I could learn something."*

A majority of male participants appeared most willing to discuss first-date conflict stories within the prompted-agreement interface. Some of them interpreted this

interface variation as emphasizing compatibility akin to a “match” computed by an algorithm. The conversation prompt, under this interpretation, was seen as the online dating system’s way of “helping” male users showcase compatibility with potential romantic partners. There was little indication that male participants would ignore prompts to discuss first-date conflict stories, especially if they emphasized an agreement, in lieu of other conversation topics that would be in line with their self-presentation motives.

Hank: *“So it’s saying we are a match? It looks similar to OkCupid and the match questions [used by their matching algorithm], but we’re seeing it right in the [messaging] chat instead of the profile.”*

Bart: *“The site is helping me out here, huh? Like ‘hey, talk about this thing you have in common.’”*

Jack: *“I’m guessing you made this [prompted-agreement messaging interface] to help guys. You’re like making sure we don’t say anything stupid by giving us something to talk about with the girl. And it’s a positive thing, something we see eye to eye on. [...] Yeah, I would no longer have to worry about what to type.”*

Female participants also expressed a general willingness to discuss the first-date conflict stories, but several of the women had hesitations regarding the prompted-disagreement interface. Some women thought the conversation would be “awkward” (Ella) if it centered around a disagreement of opinion.

Rebecca: *“I would feel uncomfortable. Usually I try to avoid negative topics like that [in dating apps]. [...] It’s not a positive vibe. And sometimes a guy will get mad if you try to say he’s wrong about something.”*

Sarah: *“Like, would I have to talk about [the disagreement]? I guess it would be ok, but I [probably would not choose to discuss the disagreement] if I had the option.”*

For a few women, the attractiveness of the man’s profile page was expected to play a role in their willingness to discuss disagreements of opinion regarding the first-date conflict stories. As Mary explained: *“I mean, if the guy’s very attractive in his profile, is classy and all that, then sure [I’ll discuss a disagreement of opinion].”*

12.4.2 User Evaluation and Self-Presentation Strategies

RQ2 had asked: *What evaluation and self-presentation strategies do users think they would adopt if prompted-disagreement and prompted-agreement messaging interfaces were included in online dating systems that they use?*

Male users predominantly talked about self-presentation strategies, as opposed to evaluation strategies, that they would use in the prompted interfaces. Several of them were particularly interested in discussing self-presentation strategies for the prompted-agreement interface, and such strategies mainly revolved around emphasizing compatibility implied by the agreement of opinion. The men thought the agreements of opinion would be a *“safe bet”* (Greg) for message content that women would find attractive.

Ray: *“I’d be like ‘hey you seeing we think the same right?’ [laughter]. Like reminding her that I’m a good guy.”*

Barry: *“Since I know the girl already agrees with me, I’d dig in a little more. Probably talk about why I didn’t pick the other choice. Maybe I’d even say I wouldn’t like girls that picked the other choice because that would look like I had standards. I don’t just pick any*

girl and I'm not all about looks. I value their opinions and views and this kind of feature [the prompted-agreement interface] helps me show that. I want to show the girl that I put thought into these [first-date conflict] stories. I'm a thinker, man."

While most discussion with the male focus groups pertained to self-presentation strategies, a few men also exhibited a desire to evaluate women through interaction in the prompted-disagreement interface, potentially as a way to identify sources of conflict in future interactions that would make women undesirable for a face-to-face date (or "*weed out the crazies*" as Eddy mentioned). When asked to brainstorm specific evaluation strategies for these interfaces however, there was little mention of anything beyond asking women "*why they picked that [opinion] choice*" (Brian).

Conversely to men, the female participants talked predominantly about evaluation strategies for the prompted interfaces. Several of the women were excited about the prompted-agreement interface due to an expectation that the resulting conversations would be more stimulating and informative than the topics that male users typically open their conversations with in open messaging interfaces. This implied that the female participants were generally unwilling to pose or change conversation topics in unprompted interfaces typical of today's commercial online dating systems even if they knew the conversation topics chosen by male users were doing little to help them with evaluation. While they seemed generally unwilling to change or pose conversation topics themselves, they welcomed the messaging interface doing so on their behalf.

Harriett: "*Oh this would be fun. [...] I'd rather talk about this than the same old stuff like 'hey how is your day?'"*

Jessica: *“I wish I had this on Tinder. We get so many ‘hey’ messages that don’t go nowhere. Guys don’t know what they’re doing. [...] Most of my chats [in open messaging interfaces] totally suck and my [mindset before dates is] like ok, hoping for the best. [...] Would this new messaging feature [the prompted-agreement interface] help me see their conversation skills earlier? Yeah I think so. I’d want to try it out.”*

Meredith: *“You know what I like? When I get lost in a good conversation with a man. When we feel like we’re really clicking, really talking. [...] When I go on dates, those conversations usually start from things going on in the news, big topics of the day. I see that in these scenarios. They really do give you something to talk about. How did you come up with these? [This question was directed at the focus group moderator.] This [first-date conflict story] would totally be something I’d talk about. I can get that deep talk started earlier before going out of my way for a date.”*

As mentioned earlier, some female participants were reluctant about using the prompted-disagreement interface, but a few women were enthusiastic about this interface variation because they thought conversations around disagreements of opinion would reveal aspects of “personality” and other traits commonly signaled through interaction.

Kelly: *“This is the reason why I’m not on the regular dating apps anymore. The [open] messaging, there’s no credibility to it. It’s so much easier for me to talk to someone organically like this [face-to-face]. If we’re working on a scenario [in the messaging interface] where it’s like ‘wait why did you pick that answer? I think that’s wrong. Why do you think that’s right?’ It reveals personality, their thought process, how they got to that [answer]. We can get deeper into this.”*

12.4.3 Messaging Interface Preference

RQ3 had asked: *Would users prefer the prompted-disagreement messaging interface and/or prompted-agreement messaging interface over an open messaging interface in online dating systems that they use?*

Male participants generally preferred the prompted messaging interfaces over the open messaging interface. This was because such interfaces would alleviate the need to create one's own conversation topics, which was a common source of frustration for male participants and something they lamented spending a lot of time on.

Jason: *"I think it would make it a bit easier. I just say 'hi' [in the online dating systems that I currently use] because what else are you supposed to do?"*

Bill: *"So I looked up some stuff online. People have tips for what to say in your messages. How to get the girl to like you. They don't always work and [...] I put more time into that than anything. [...] I'd go with this [a prompted interface] for that reason alone. Time."*

Comparing the prompted-agreement and prompted-disagreement interfaces, the male participants tended to prefer the prompted-agreement interface. Some male participants discussed with each other how they felt like this interface would give them an "advantage." When asked to elaborate, they described how the emphasis of an agreement of opinion gives the perception that the online dating system thinks the two users are a romantic match. They thought this, in turn, would make the female user in the conversation more attracted to them.

Zack: *"It gives me an advantage. The girl sees [the agreement of opinion] too, maybe she's thinking this guy is alright. [...] I got this."*

Mike: *“Yeah like I wouldn’t be worrying like am I saying the right thing. I’m just doing what the app is telling me to do. I’ll follow [the interface’s] lead. [...] As long as I don’t say something stupid, screw it up, I’m probably going to get the date.”*

Not all male participants preferred the prompted interfaces. A couple men liked the open messaging interface best because it serves as an opportunity to distinguish themselves from the men who do not know how to attract women through messaging conversations. Prompted messaging interfaces could potentially remove that advantage or “level the playing field.”

Roger: *“I have my routine. [...] I sense things in the profile and I talk about how we have those things in common. It’s better than what you guys are doing I think [referencing how other men in the focus group admitted that their current strategies in open messaging interfaces involve just saying “hey”]. [...] If you have this app telling you what to talk about, damn.”*

Female participants also preferred the prompted interfaces generally over the open messaging interface. The reason most often given was that the first-date conflict stories would serve as a better starting point for probing deeper into romantic attraction than the conversation topics that men usually pick.

Kristen: *“There are only so many different ways they can start [a messaging interaction] with me. It’s either Game of Thrones because that’s in my profile, or my looks, or just ‘hey how are you.’ [...] I’d get a lot more information about us as a potential couple with these [first-date conflict stories].”*

Joann: *“Yes, yes, yes. Messaging is my least favorite part of online dating. I could show you some of the messages I get. They are just so bad and you can’t get a conversation*

started from any of that. I think it would be a lot of fun to talk about these scenarios, ones like this. [...] I bet it would save me from going on a lot of bad dates with guys that can't talk to save their life."

Some female participants said they would even be willing to send the first message in prompted interfaces because the prompt itself could be interpreted as a message to "kickstart" (Emma) the interaction. In other words, the online dating system itself starts the interaction on behalf of users, so the woman does not feel like she is really making the first move if she responds to the prompt before the man. This runs counter to literature about open messaging interfaces, which found that women rarely send the first message in messaging interactions [63].

Vivian: *"I wouldn't even wait for the guy [to send the first message]. The site is asking us to talk about [this first-date conflict story], so I don't feel like I'm really making the first move here. It's not like I'm starting the conversation out of nowhere. [...] The way I see it, the app is doing that."*

Ella: *"Well I would ask [the man I matched with] why he picked that [opinion] choice. So he would be the one to really start talking about the story first because I'd want to get his take on it before I start explaining myself. [...] Actually I'd probably prefer to send the first message so I can get him to start explaining his opinion first [laughter]."*

Like the men, the female participants had a preference for the prompted-agreement interface over the prompted-disagreement interface. This difference in preference stemmed largely from a hesitance to discuss disagreements on opinion. Some female participants mentioned open messaging interactions they had in online dating systems in the past in which men reacted poorly to disagreements that occurred during

interaction. Those bad experiences influenced their reactions to the prompted-disagreement interface, leading them to expect similar negative reactions from men.

Tonya (discussing a prior online dating experience): *“This one guy, right. He was talking about some restaurant we both know and I said it’s pretty overrated. A tourist spot. He freaked out at me! Saying I have no taste and all that. Well excuse me for having a different opinion. [...] I wouldn’t want to get into a lot of those conversations. So me, personally, I’m fine with the guy picking a different opinion choice from me. Would he be okay though? If you could somehow check that, to make sure the guy wouldn’t freak out that I disagreed, this would probably be a great, great feature to have.”*

12.5 Limitations of Focus Groups

There are some limitations to the focus group portion of the study that should be noted. For one, participant’s answers could have been influenced by answers provided by other participants. Some participants may also have been reluctant to discuss topics—such as strategies for online dating system-use—that would make them appear unsuccessful at dating. In addition, participants in the focus groups did not know ahead of time that they would be discussing online dating system interfaces at the speed dating event. While no participant declined to be a part of a focus group, their answers may have been different if they knew ahead of time that they would be talking with other daters and with researchers about online dating. Lastly, the participants were likely able to discern that the new messaging interface variations (the prompted-agreement and prompted-disagreement interfaces) were created by the research team, as no participant recognized

them from existing commercial online dating systems. This may have led them to attenuate criticism of the interfaces.

12.6 Discussion of the Mixed Methods Field Study: Interpreting the Quantitative Results in Light of Qualitative Findings

Enjoyment of interaction is central to decisions to maintain evaluation of potential romantic partners [121, 222]. It is thus important for online dating system users that interactions through messaging interfaces be similarly enjoyable to interactions on face-to-face dates. If not, enjoyable messaging interactions may trigger users to desire in-person meetings that are ultimately unsuccessful (not culminating in desire for a second meeting), which wastes users' finite time and resources, not to mention the effects that unsuccessful meetings can have on emotional wellbeing.

The objective of the mixed methods field study was to assess novel messaging interfaces for online dating systems in their ability to help users make successful in-person meeting decisions (i.e., meetings that culminate in a desire for a second meeting) by way of producing messaging interactions with potential romantic partners that are similarly enjoyable to subsequent face-to-face interactions.

The study collected quantitative and qualitative data regarding three variations of a messaging interface in an online dating system—an open messaging interface (in which users discuss whatever they would like), a prompted-disagreement interface (in which users discuss a first-date conflict story that they disagreed on), and a prompted-agreement interface (in which users discuss a first-date conflict story that they agreed on).

Quantitative data was obtained from daters who used all three messaging interface variations to interact with potential romantic partners online before meeting them face-to-face for short “speed dates” at a dating event in a New York City bar. This procedure yielded data about how the messaging interface variations differed in regards to one: differences in enjoyment of messaging interactions and subsequent face-to-face interactions during short “speed dates,” two: differences in desires for a regular date with a potential romantic partner after a messaging interaction and a subsequent face-to-face speed date, and three: confidence in desires to go on a regular date after messaging interaction. Qualitative data was collected from focus groups to gauge online daters’ personal reactions to the messaging interfaces, specifically: their willingness to discuss first-date conflict stories if a messaging interface prompted them to do so, their anticipated online dater evaluation and self-presentation strategies for the messaging interfaces, and their general messaging interface preference (i.e., which interface they liked best).

In this section the quantitative results and qualitative findings will be discussed in conjunction to gain deeper understanding of the messaging interfaces. The study indicated gender differences regarding the messaging interfaces. As such, results and findings will first be discussed for each gender separately. The gender differences themselves will then be discussed, which includes possible reasons for these differences, avenues for future work, and design implications for online dating systems.

12.6.1 Discussion of Results and Findings for Women

Results and findings for women are discussed according to the three dependent variables from the quantitative component of the study.

12.6.1.1 Enjoyment of Interaction.

H1 and its sub-hypotheses explored how enjoyment of interactions using the messaging interface variations compared to enjoyment of subsequent interactions during short face-to-face speed dates. According to behavioral theory, sustained evaluation of a potential romantic partner is the product of enjoyable or “rewarding” interactions with the partner [119,123]. The premise of this theory implies that prior/current interactions and future interactions with a potential romantic partner will be similarly rewarding. As such, online daters’ evaluations of potential romantic partners would benefit most from an interface that yields enjoyment of messaging interactions that most closely matches enjoyment of subsequent face-to-face interactions. It was hypothesized that enjoyment of interaction through the prompted-disagreement would best predict enjoyment of subsequent face-to-face “speed date” interaction, followed by the prompted-agreement interface, and then followed by the open messaging interface.

Enjoyment of interaction was operationalized in two different ways in this study: 1) with “impact ratings,” or the impact (super negative to super positive) that a partner’s statements had on a user during an interaction [158,159], and 2) with the “enjoyment of interaction” index, which gauged the quality of an interaction, degree of closeness in an interaction, and satisfaction with an interaction [183]. Results for women were statistically significant, but not as expected.

The prompted-agreement interface performed the best for women according to both operationalizations of enjoyment of interaction, followed by the prompted-disagreement interface. When comparing one interface against another, both of the prompted interfaces yielded significantly smaller differences in impact ratings of a partner's statement during messaging and face-to-face interactions than the open messaging interface. Yet only the prompted-agreement interface yielded significantly smaller differences in "enjoyment of interaction" index answers between messaging and face-to-face interactions than the open messaging interface. The prompted interfaces were not significantly different from each other in either operationalization.

How can we explain the unexpected results for the prompted-disagreement interface? Why did it not perform the best, and why would the prompted-disagreement interface produce significantly smaller differences in impact ratings than the open messaging interface, but not in regards to "enjoyment of interaction" index answers? The focus groups can provide some indication.

Some female focus group participants explained that discussing disagreements of opinion regarding first-date conflict stories would likely feel awkward and uncomfortable, and some suggested they would not engage in such interactions if the system did not explicitly ask them to. These reactions were informed by their past online dating experiences in which male users reacted negatively to an argument or disagreement that arose during (open) messaging interaction, ruining any enjoyment with the interaction. While results from this study indicated that enjoyment of interactions through the prompted-disagreement interface did not significantly differ from the other interfaces, the focus group insight poses the possibility that female users of the online

dating system felt some level of discomfort while interacting through the prompted-disagreement interface for reasons unrelated to the content of messages they were receiving from their male potential partners (such as a general unfamiliarity with discussing a disagreement within an online dating system, or an expectation or fear that the interaction could devolve into an argument at any moment).

This is important to note because while the “impact rating” operationalization gauged only the impact of the partner’s statements during interaction, the “enjoyment of interaction” index gauged enjoyment of interaction more holistically (e.g., questions about satisfaction with the interaction and quality of the interaction), and answers to those questions could have factored in influences on enjoyment of interaction other than just the partner’s statements (such as general discomfort caused by a prompt to discuss a disagreement). Any discomfort or awkwardness with prompted-disagreement messaging interactions may not have been present in subsequent face-to-face speed date interactions that lacked any kind of agreement/disagreement prompt, which could have led to disparities in answers to the “enjoyment of interaction” index questions that would not have been mimicked in “impact rating” answers.

This explanation regarding discomfort around prompts to discuss disagreements is supported by theory, particularly negativity bias (described in Chapter 3; the notion that negative information has a greater effect on one’s psychological state than neutral or positive information [10]). Online daters are not especially used to information that can be considered negative (such as a disagreement of opinion) being emphasized intentionally and prominently within an online dating system, but instead have become familiar with emphasis of positive information implying compatibility (e.g.,

recommendations from matching algorithms). It is thus a plausible explanation that enjoyment of messaging interactions through the prompted-disagreement interface did not best predict enjoyment of face-to-face interactions because the emphasis of a disagreement of opinion (which would be considered negative information about a potential romantic partnership) could have had a psychological effect on women that would not have been present during subsequent face-to-face interactions.

The focus groups also supported the results for the prompted-agreement interface, which performed best for women in producing messaging interactions that were similarly enjoyable to subsequent face-to-face interactions. Female participants in the focus groups clearly preferred the prompted-agreement interface over the prompted-disagreement interface (due to expected discomfort around discussing disagreements) and the open messaging interface due to an expectation that discussions around the first-date conflict stories would inform them more about potential compatibility with their partners than the discussion topics that men typically bring up. This is particularly important considering that female focus group participants indicated that they seldom change/pose conversation topics themselves in messaging interactions even when the topics posed by male potential partners do little to aid their evaluations.

12.6.1.2 Desires for a Regular date. H2 and its sub-hypotheses explored how desires for a regular date (i.e., an explicitly romantic date outside of the study) after messaging interaction compared to desires for a regular date after a short face-to-face “speed date” with a respective potential romantic partner. H2 hypothesized similar results to H1 because—given the central role that interaction plays in online dater evaluation decisions according to behavioral theory—messaging and subsequent face-to-face

interactions that are similarly enjoyable should also produce similar desires for a regular date. It was hypothesized that desire for a regular date after messaging interaction through the prompted-disagreement interface would best predict desire for a regular date after an initial face-to-face interaction, followed by the prompted-agreement interface, and then followed by the open messaging interface.

Like with H1, the prompted-agreement interface performed best for women, followed by the prompted-disagreement interface. When comparing interfaces to one another, the prompted-agreement interface produced significantly smaller changes in desires for a regular date than the open messaging interface. However, the prompted-disagreement interface did not significantly differ from the other two interfaces. These results were not as hypothesized, but they did mirror the results of H1 under the “enjoyment of interaction” index operationalization. This similarity between results for H1 and H2 supports the behavioral theory explanation that enjoyment of interaction plays a central role in desires to continue evaluation of a potential romantic partner (such as on a regular date). The explanations from the focus groups pertaining to H1 also apply here. Female focus group participants were excited about the prompted-agreement interface because they expected messaging interactions prompted with a first-date conflict story to give them indications of compatibility that they typically would not detect until face-to-face meetings. Discomfort caused by an emphasized disagreement of opinion may have prevented the prompted-disagreement interface from having a similar effect.

12.6.1.3 Confidence in Desires for a Regular date after Messaging.

H3 had predicted that the prompted-disagreement interface would produce the most confidence in desires for a regular date after messaging interactions, followed by the prompted-agreement interface, and then followed by the open messaging interface. Results showed that the messaging interface variations did not differ for women regarding this variable. The focus groups can provide insight into this result. Several women in the focus groups recalled past experiences in which interactions on face-to-face dates with other online daters were unenjoyable. Like users from studies 1 and 2 in this dissertation, they held a perception that first dates with online daters are likely to go poorly because open messaging interactions give little indication of what subsequent face-to-face interactions will be like. Given that most of the users of the online dating system in this study had prior experience using commercially available online dating systems, they too may have had expectations for inaccurate evaluations and thus expectations of misinformed desires for regular dates. Their confidence in desires for a date likely would not have increased when using the prompted messaging interfaces until after they had an opportunity to validate online evaluations stemming from these messaging interfaces through face-to-face meetings.

An avenue for future work would be to study women that already have experience meeting men face-to-face that they originally interacted with through the prompted-disagreement and/or prompted-agreement interfaces. Would their confidence in desires for regular dates with new potential partners increase if prior experiences confirm to them that their desires for regular dates online are indeed maintained after meeting face-to-face?

12.6.1.4 Summary of Results for Women. Ultimately, the study indicates that a prompted-agreement messaging interface would better support women in making in-person meeting decisions that are considered successful (i.e., culminate in a desire for a second meeting) than the open messaging interface typical in today's online dating systems. From a behavioral theory perspective, this is because enjoyment of interactions through the prompted-agreement interface better predicts enjoyment of face-to-face interactions than the open messaging interface.

The prompted-disagreement interface does not appear to be similarly beneficial for women. An emphasized disagreement of opinion in this messaging interface may incur a psychological effect on women's online dater evaluations (negativity bias) that would not be present in subsequent face-to-face interactions, which can lead to disparities regarding desires for regular dates after messaging interaction and after short face-to-face interactions. This explanation also brings up a notable difference between married couples (the subjects in most of the prior problem-solving discussion research that informed this interface design) and potential romantic partners. Married partners are already quite familiar with each other, and have likely already had many conversations involving disagreements throughout their relationship. Thus a problem-solving discussion in the context of a research study would not have incurred a negativity bias or discomfort that they did not already experience at some point in their relationship. Potential romantic partners in this study knew very little about each other before the messaging interaction aside from the disagreement concerning the discussion topic. This likely amplified the psychological effect of an emphasized disagreement of opinion, especially considering

that users were probably accustomed to online dating systems that emphasize positive information/signs of compatibility.

An avenue for future work would be to investigate more thoroughly potential discomfort and awkwardness around disagreement-prompted messaging interactions. Future work could explore if potential discomfort/awkwardness around disagreement-prompted messaging interactions could be alleviated by increasing exposure to the prompted-disagreement interface. Could, for example, use of the prompted-disagreement interface yield more similarity in enjoyment of messaging and subsequent face-to-face interactions for female daters if they used the interface more often and became accustomed to having information perceived as negative being emphasized in the interface (therefore reducing a negativity bias)? In addition, the prompted-disagreement interface could be modified to explicitly inform users that emphasized disagreements of opinion are not intended to instigate arguments and then re-assess the interface to see if users still experience or expect to experience discomfort.

12.6.2 Discussion of Results and Findings for Men. Results and findings for men are discussed according to the three dependent variables from the quantitative component of the study.

12.6.2.1 Enjoyment of Interaction. Results for the male users regarding H1 (differences in enjoyment of messaging interaction and face-to-face speed date interaction) showed no differences between the messaging interfaces. This is understandable given that male focus group participants appeared primarily interested in utilizing the prompted messaging interfaces to fulfill their self-presentation motives and

gather signals that female potential partners were attracted to them. If male users of the online dating system had the same motives, they may have been less interested in or cognizant of enjoyment of interactions and more focused on monitoring their self-presentations.

It would be interesting for future work to probe into how male users' perceptions of their self-presentation efforts differ based on the messaging interface used. Would male users, for example, feel obstructed in their self-presentation attempts when using the prompted interfaces because they cannot choose messaging conversation topics that are more in line with their self-presentation strategies?

12.6.2.2 Desires for a Regular date. Results for the male users regarding H2 (differences in desires for a regular date after messaging and after a face-to-face speed date) did produce significant results, albeit not as expected. Results showed that the open messaging interface performed best, and it produced significantly smaller differences in desires for a regular date than the prompted-agreement interface (which performed worst). This was the opposite of the expected relationship between these two interfaces. The male focus groups did provide some explanation for this result.

Some of the male focus group participants interpreted the emphasis of agreement of opinion (in the prompted-agreement interface) as the online dating system's way of conveying compatibility, or a "match" between users. Some then expected that this emphasized compatibility would make them more attractive in the eyes of female potential partners. If male users of the online dating system had the same perception, their messaging interactions through the prompted-agreement interface—and ensuing desires

for regular dates—would have been from a position of assumed attraction from their female counterparts. During face-to-face speed dates, if male users came to the realization that perceptions of compatibility and/or attraction were not actually reciprocated as much as expected by their female counterparts, their desires for regular dates likely would have changed. The notion of perceived attraction from a potential partner influencing one’s own attraction to that partner draws some comparisons to the phenomenon of reciprocal liking (Chapter 3), which describes how people are more attracted to those whom they think are attracted to them [85]. Results did not indicate that men had significantly higher desire for dates after interactions through the prompted-agreement interface than the other interfaces, yet it is still likely that men’s desires for regular dates would change (in either direction) when their perception of a female partner’s own desire for a date with them changes. For example, if a male user detects during a face-to-face speed date that a potential partner is interested in him but not as much as he expected, he might consider her “harder to get” and thus more attractive, increasing his desire for a regular date outside of the study. Alternatively, a male user might have high desire for a date with a woman he considers only somewhat attractive if the messaging interface leads him to think she also desires a date with him. If he comes to the realization during the face-to-face speed date that she actually does not desire a date as much as he expected, he may lose his own desire for a date because of the unanticipated new effort it would take to attract her.

12.6.2.3 Confidence in Desires for a Regular date after Messaging.

Regarding H3—pertaining to confidence in desires to go on a regular date after messaging—the messaging interfaces did not significantly differ for male users. Like the explanation posed for the female daters, this may have been because male users had no prior experience with meeting potential partners face-to-face that they initially had interactions with through the prompted messaging interfaces. If prior experiences with the prompted messaging interfaces indicated to them that their online evaluations were largely supported face-to-face, their confidence with future potential partners in regards to desires for regular dates after messaging would likely increase.

12.6.2.4 Summary of Results for Men. Ultimately, neither the prompted messaging interfaces seem to better support online dater evaluation for male users than the open messaging interface typical in today’s publicly available online dating systems. This seems to be due to men utilizing messaging interfaces not as a way to predict if they would enjoy subsequent interactions, but primarily as a way to make female potential partners more attracted to them and to gauge how well they are increasing or maintaining that attraction. The prompted-agreement interface was actually detrimental to male users’ in-person meeting decisions relative to the open messaging interface, which may be due to the prompted-agreement being interpreted by men as a signal of compatibility and therefore assumed attraction from women that is later deemed inaccurate during face-to-face interaction.

Future work could explore if increasing exposure to the prompted-agreement interface could alleviate misattributions of attraction stemming from emphasized agreements of opinion. In other words, could male users learn that emphasized

agreements are not actually indicative of attraction? In addition, the prompted-agreement interface could be modified to explicitly inform users that emphasized agreements of opinion are not intended to insinuate compatibility or attraction from a partner and then re-assess if male users still have a tendency to assume attraction based on the emphasized agreement of opinion.

12.6.3 Discussion of the Differences between male and female daters

This study indicated that the messaging interfaces affected online dater evaluation for male and female daters differently. These differences were most pronounced with the prompted-agreement interface. Results showed that the prompted-agreement messaging interface significantly differed from the open messaging interface for both men and women, and in opposite ways. The prompted-agreement interface was significantly better than the standard open messaging interface for women in creating desires for regular dates that matched such desires after meeting a potential partner for a short face-to-face interaction, yet it was significantly worse than the open messaging interface for men. How can we explain this difference?

A key difference between male and female users in online dating systems, as supported by the first two studies in this dissertation and other studies in the online dating literature [63], is that women typically receive much more attention online than men—they receive far more messages than do men, they instigate messaging interactions less often than men, and they respond to messages less often than men. As such, differences between male and female daters in this study may really reflect differences in the amount of attention that users are accustomed to receiving in online dating systems rather than simply the user's gender.

Users who are accustomed to garnering lots of attention online (typically women) may prioritize the detection of signals of compatibility in messaging interactions because they are less concerned over maintaining or increasing attraction from one potential partner. A messaging interface that supports expression and detection of those signals—such as the prompted-agreement interface—would be helpful to those users. However, users who are not as accustomed to garnering a lot of attention online (typically men, who receive less messages and less replies) may prioritize the detection of signals of attraction in messaging interactions so that they can try to sustain the attention they are receiving. A messaging interface that emphasizes information (i.e., an agreement of opinion) that can be misinterpreted as a signal of attraction would be disadvantageous to these users.

Future work can explore this explanation with additional assessments of the prompted messaging interfaces that include survey questions about the amount of attention that participants typically receive in online dating systems and then analyzing if effects of the messaging interfaces differ based on that attention. Furthermore, future studies can assess the interfaces with homosexual users to see if the effects of the interfaces also differ for them based on the attention they typically receive in online dating systems.

12.7 Future Work and Design Implications

The prompted messaging interfaces assessed in this study did not support users in the ways expected, but the prompted messaging interfaces still have potential to help users in making in-person meeting decisions.

One avenue of future research is to explore if repeated use of the prompted messaging interfaces can improve the interfaces' abilities to support users in making successful in-person meeting decisions. To summarize points from the previous section, repeatedly using the prompted messaging interfaces to interact with potential romantic partners and then meet them face-to-face may do the following: 1) increase users' confidence in desires for dates after messaging if they learn that such desires are often confirmed face-to-face; 2) reduce potential discomfort with the prompted-disagreement interface stemming from fears of arguments if users realize such arguments seldom occur; and 3) reduce misattributions of attraction from emphasized agreements of opinion in the prompted-agreement interface if users learn that agreements of opinion seldom predict attraction from potential partners in-person.

This study also poses design implications for the prompted messaging interfaces. Another avenue of future work would be to modify the design of the prompted messaging interfaces to proactively address potential discomfort and misattributions that stem from their use and then re-assess their effectiveness. For example, the interface can clarify to users that an emphasized disagreement of opinion is not intended to incite an argument, and that an emphasized agreement of opinion should not be interpreted as a signal of attraction.

In addition, this study (and the interview studies preceding it) suggest that online daters prioritize different information when interacting with potential romantic partners online based on the amount of attention they are accustomed to receiving in online dating systems. Because users prioritize information about potential partners differently, a particular messaging interface design is likely to support some evaluation needs more

than others, and can even mislead some users based on the information that the interface conveys (e.g., the prompted-agreement interface for men). This suggests that a singular, “one size fits all” interaction interface cannot support all users equally in making in-person meeting decisions. An alternative would be to scaffold interaction interfaces with different sets of information to users based on the amount of attention they typically receive online to better accommodate their varying online dater evaluation needs.

12.8 Summary

This chapter presented the qualitative component of a mixed methods field study of three variations of a messaging interface for online dating systems. After presenting findings from user reactions to the messaging interfaces, the chapter reviewed insights from the quantitative and qualitative components of the study in conjunction to gain deeper understanding of the messaging interfaces.

The messaging interfaces did not support users as expected, and the studies indicated that the messaging interfaces affected male and female daters differently, which may be due to varying amounts of attention that they are accustomed to receiving in online dating systems. The chapter concluded with avenues for future work and design implications for online dating systems.

CHAPTER 13
DISSERTATION SUMMARY

13.1 Introduction

Online dating systems have transformed the way humans pursue romance. While they facilitate the discovery of a near endless supply of potential romantic partners, users of online dating systems still need to actively evaluate the potential romantic partners they discover online to determine who is worth the costs of an in-person meeting. The work in this dissertation explored how to better support online dating system users in making in-person meeting decisions through interaction with potential romantic partners. This chapter summarizes the motivation for this dissertation and reviews its contributions.

13.2 Evaluating Potential Romantic Partners through Interaction

Theory positions interaction with a potential romantic partner as a primary context through which humans evaluate attraction-relevant traits and make decisions of whether to continue pursuing a potential romantic partner. According to behavioral theory, for example, decisions to continue pursuing or maintaining a romantic relationship with a respective partner are the result of an accumulation of enjoyable or “rewarding” interactions [20,90–92,123]. Attribution theory posits a mechanism for how interaction informs these decisions—a partner’s behavior and dialogue during face-to-face interaction signal a variety of attraction-relevant traits that are otherwise unobservable, such as personality [19,21].

Most of the research regarding the importance of interaction to evaluation of potential romantic partners has studied face-to-face interaction. Online dating systems introduce a second (online) modality through which individuals interact with and evaluate potential romantic partners. If enjoyment of interaction is central to decisions to continue evaluation of a potential romantic partner, it is then imperative that interactions remain consistently (un)enjoyable across online and face-to-face modalities. Otherwise users of online dating systems may choose to go on face-to-face dates that are ultimately unenjoyable, or risk declining face-to-face dates that would have been enjoyable.

13.3 The Online Dater Evaluation Process

For users of online dating systems, the decision to meet a potential romantic partner face-to-face is quite costly: these meetings consume time and money, and a bad date can make one emotionally vulnerable. A contribution of this dissertation is the model of online dater evaluation, which describes the process that an online dater goes through from discovering a potential romantic partner in an online dating system up to the first face-to-face meeting with that potential partner (if evaluation were to progress that far).

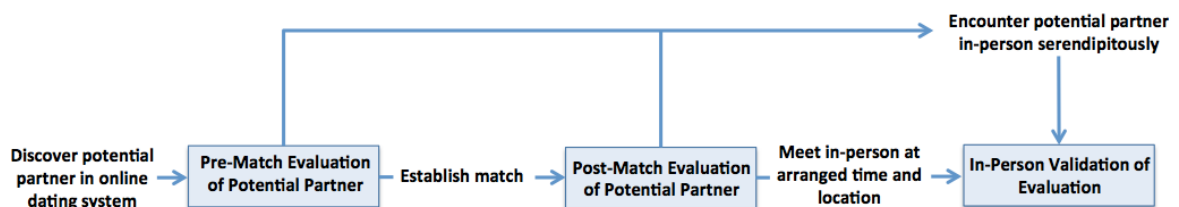


Figure 13.1 The online dater evaluation process from the perspective of one user evaluating another.

The process has three main stages:

Pre-match evaluation: the point of discovering a potential partner in an online dating system up to establishment of a match with the respective potential partner (a match is defined in this dissertation as both users explicitly indicating interest in each other). Online dater evaluation decisions in this stage are dictated mostly by user profile pages, which contain static self-provided information about a user, and introductory text-based messages received from a potential partner.

Post-match evaluation: the point of matching with a potential romantic partner up to, but not including, the first in-person meeting. This stage of evaluation is largely comprised of direct interaction with the potential romantic partner through a text-based messaging interface provided in online dating systems.

In-person validation of evaluation: interacting with the potential partner during an initial in-person meeting.

Most research involving online dater evaluation prior to this dissertation focused on the pre-match stage and content of user profile pages. There persisted a gap in knowledge regarding how users interact through messaging interfaces in online dating systems, how those interactions inform in-person meeting decisions, and how enjoyment of messaging interactions compares to subsequent interactions during initial in-person meetings.

Additional contributions of this dissertation relating to the online dater evaluation process are definitions of a successful in-person meeting between online dating system users and descriptions of potential online dater evaluation outcomes. This dissertation defines a successful in-person meeting from a particular dater's perspective as one

culminating in a desire for a second meeting or, otherwise, the achievement of a relationship goal that necessitated only one meeting (e.g., casual sexual encounter). The dissertation put forth four possible outcomes of online dater evaluation:

- 1) the user decided to go on an in-person meeting and that meeting was successful (true-positive);
- 2) the user decided to go on an in-person meeting and that meeting was unsuccessful (false-positive);
- 3) the user decided to discontinue evaluation of a potential romantic partner before meeting in-person, but that meeting would have been successful if they did meet (false-negative); and
- 4) the user decided to discontinue evaluation of a potential romantic partner before meeting in-person, and that meeting would have been unsuccessful if they did meet (true-negative).

The dissertation asserted that online dating system users want to reduce the occurrence of false-positive decisions as much as possible because of the costs involved with in-person meetings (e.g., time, money, missed opportunities to meet others).

Table 13.2 Potential Online Dater Evaluation Outcomes

	In-person meeting would be successful	In-person meeting would be unsuccessful
Decide to meet potential partner in-person	True-Positive	False-Positive
Decide not to meet potential partner in-person	False-Negative	True-Negative

13.4 Study 1: Qualitative Exploration of the Online Dater Evaluation Process from the Perspective of Online Dating System Users

The first study of this dissertation entailed a qualitative study of how online dating system users evaluate potential romantic partners through all stages of the online dater evaluation process, with a focus on the role of interaction in that process. It was found that messaging interactions were a necessary precursor to mutual decisions to meet face-to-face, and that enjoyment of messaging interactions was an important factor in these decisions, especially for female users. It was also found that initial in-person meetings between users seldom culminated in a mutual desire for a second meeting. This was often due to a lack of enjoyment with interaction during initial in-person meetings and unattractive traits signaled through such interaction.

An inability to predict enjoyment of face-to-face interactions from messaging interactions seemed to stem from a tendency of users to employ text-based messaging as an interface for thinly veiled self-presentation and evaluation strategies rather than as an interface to have naturally flowing conversations. Some users (typically men) adopted the messaging interface to anxiously bid—or audition—for the sustained attention of potential partners, often by over-deliberating message content or sending copy-and-pasted message content that they believed would maximize their attractiveness. Other users (typically women) assumed the role of strict evaluator of these auditions—a director, so to speak—by probing message content for any reason to reject the respective user and shift focus to other interested suitors. These overt self-presenter and evaluator roles did little to encourage messaging interactions that would be indicative of face-to-face interactions (where the synchronous nature and duration of a face-to-face meeting

would make pre-meditated dialogue untenable, and hasty abandonment of a date after a lull in conversation impractical and rude).

13.5 Study 2: Qualitative exploration of online dater evaluation strategies considered successful

The first study provided valuable insight into online dating system users' strategies for messaging interactions within online dating systems, and how those strategies appeared detrimental to their chances of making successful in-person meeting decisions. The second study in this dissertation aimed to uncover online dater evaluation strategies that consistently yield successful in-person meeting decisions (meetings that culminate in a desire for a second meeting or, otherwise, the satisfaction of one's relationship goal). With an understanding of such strategies, online dating systems could be designed to encourage adoption of those strategies amongst the broader user base. In line with this objective, the second study of this dissertation entailed a qualitative exploration of the online dater evaluation strategies advocated by online dating coaches whose professional focus is to help users successfully use online dating systems towards achieving particular relationship goals.

The online dating coaches considered the ability to make successful in-person meeting decisions to be fundamentally stifled in online dating systems, particularly through messaging interactions, due to assumed impression management motives of the broader user base that would distort any signals or expectations of behavior during face-to-face interactions. In line with behavioral theory and attribution theory, the online dating coaches considered face-to-face interaction to be the only reliable mechanism or setting for evaluating potential romantic partners. Their strategies for messaging entailed

intentionally shortening interactions and relying on rigorously tested prewritten message content to persuade potential partners to meet in-person quickly. The costs of in-person meetings however—such as time and money—limit the scalability of this online dater evaluation strategy, making it unadvisable for the broader user base.

13.6 Construction of Research Artifact

Following a research through design approach [208], findings from the previous two studies along with literature on romantic attraction were reflected upon to design a research artifact that would help users make successful in-person meeting decisions by way of producing messaging interactions that are similarly enjoyable to subsequent face-to-face interactions. This approach culminated in the design of a novel messaging interface prototype for online dating systems called the “prompted-disagreement interface” that prompts users to have problem-solving discussions, or conversations in which two users contend with differences of opinion about a topic. Prior work from the 1970s has shown that problem-solving discussions amongst married couples can predict marital satisfaction at current and future times [158,159]. Models resulting from this work posit that this is due to problem-solving discussions being a type of conversation topic conducive to expression of “enduring strengths and vulnerabilities,” which constitute the variety of traits and past experiences that influence how individuals behave during interaction. Conversation topics that better support expression of “enduring strengths and vulnerabilities” may yield messaging interactions between potential romantic partners that are similarly enjoyable to interactions during in-person meetings

where the richer, face-to-face context inherently supports signaling of a variety of attraction-relevant traits.

The type of problem-solving discussion topic incorporated in the messaging interface prototype is called a first-date conflict story—a scenario concerning a first date between potential romantic partners that asks the reader to select one of two opinion choices that best aligns with their feeling about the actions of one of the hypothetical daters in the scenario. The messaging interface asks two potential romantic partners to discuss a first-date conflict story that they disagreed on (picked opposite opinion choices for prior to initiating a messaging interaction). One example of a first-date conflict story included in the messaging interface prototype is:

Harry and Danielle just finished their first date. They had an easy-flowing conversation and discovered they have a lot of things in common. However, Harry learned that Danielle is friends with his ex-girlfriend who he's no longer on speaking terms with. This is a deal breaker for Harry—he decides not to go on any more dates with Danielle because she's friends with his ex. Was this a good reason for Harry to reject Danielle?

13.7 Study 3: Mixed Methods Field Study of Research Artifact

The final study of this dissertation entailed quantitative and qualitative assessment of three variations of a messaging interface for online dating systems regarding how they support users in making successful in-person meeting decisions. These messaging interface variations included the prompted-disagreement interface (in which users discuss a first-date conflict story that they disagreed on), the prompted-agreement interface (in

which users discuss a first-date conflict story that they agreed on), and the open messaging interface (in which users can discuss whatever they would like; i.e., the typical messaging interface in online dating systems). It was expected that the prompted-disagreement interface would best support users in making successful in-person meeting decisions, followed by the prompted-agreement interface, and then the open messaging interface.

The study involved “speed dating” events [62] in which real single daters gathered at a bar in Manhattan to be exposed to the messaging interface variations and then meet potential romantic partners for face-to-face interactions. Prior to face-to-face interactions at the bar, some daters provided quantitative data by using an online dating system accessible through laptops at the bar to evaluate potential romantic partners (ones they would later meet face-to-face) through the messaging interface variations. At the same time while daters were using the online dating system, other daters at the bar provided qualitative data through focus groups that gauged their personal reactions to mockups depicting the same messaging interface variations.

Quantitative results indicated that the prompted-agreement messaging interface would help women in making in-person meeting decisions that are considered successful (i.e., culminate in a desire for a second meeting) better than the open messaging interface typical in today’s online dating systems. In line with behavioral theory, the prompted-agreement interface also yielded messaging interactions that were more similarly enjoyable to subsequent face-to-face interactions than the open messaging interface for women. Qualitative findings provided additional support for the prompted-agreement interface—female participants were most excited about this interface out of the three, and

they expected messaging interactions stemming from the prompted-agreement to be more indicative of interactions they would have face-to-face than topics that men typically pose in open messaging interfaces.

The prompted-disagreement interface was second best for women—behind the prompted-agreement interface—in helping them make successful in-person meeting decisions. One reason that the prompted-disagreement interface did not perform best, as expected, stems from discomfort with discussing an emphasized disagreement of opinion. The focus group participants expected interactions stemming from prompted-disagreements to be uncomfortable and awkward, and some indicated that they would not engage in such interactions if the interface did not explicitly ask them to. This reaction was informed by past experiences with open messaging interactions that became uncomfortable when male potential partners reacted negatively to a disagreement or argument that arose by accident. Any discomfort or awkwardness stemming from an emphasized disagreement of opinion may have incurred a psychological effect on women that would not have been present in subsequent face-to-face interactions, which could have led to disparities in desires for dates and enjoyment of interactions.

For male users, the open messaging interface was best at helping them make successful in-person meeting decisions. More specifically, the prompted-agreement interface was significantly worse than the open messaging interface at producing desires for dates online that matched such desires after a short face-to-face interaction. Findings indicated that this may be due to the prompted agreement of opinion being interpreted by men as a signal of their attractiveness to a female potential partner that is later deemed inaccurate during face-to-face interaction.

Differences in how the messaging interfaces affected male and female participants differences were most pronounced with the prompted-agreement interface, which was significantly better than the open messaging interface at helping women make successful in-person meeting decisions, but significantly worse than the open messaging interface for men. One explanation pertains to the amount of attention that users are accustomed to receiving in online dating systems. Users who are accustomed to garnering lots of attention online (typically women) may prioritize the detection of signals of compatibility in messaging interactions because they are less concerned over maintaining or increasing attraction from one potential partner. A messaging interface that supports expression and detection of those signals—such as the prompted-agreement interface—would be helpful to those users. However, users who are not as accustomed to garnering a lot of attention online (typically men, who receive less messages and less replies) may prioritize the detection of signals of attraction in messaging interactions so that they can try to sustain the attention they are receiving. A messaging interface that emphasizes information (i.e., an agreement of opinion) that can be misinterpreted as a signal of attraction would be disadvantageous to these users.

13.8 Summary of Contributions

This dissertation makes several contributions to the field of human-computer interaction that would be useful to researchers and designers of online dating systems and social matching systems more broadly.

The dissertation first made a theoretical contribution in the form of a model of the online dating evaluation process (Figure 5.1 in Chapter 5). This model depicts how users

of online dating systems make decisions to meet potential romantic partners face-to-face. Considering that several of today's commercially available online dating systems also market themselves as general social matching applications suitable for platonic relationship goals (e.g., *Tinder Social*, *Bumble BFF*), this model is generalizable and relevant to researchers of technology-use for pursuing romantic, sexual, and platonic relationships.

An additional theoretical contribution of this dissertation involves a definition for successful in-person meetings between online dating system users and a description of potential online dater evaluation outcomes (Table 5.1 in Chapter 5). While these definitions were proposed in the context of online dating, they provide a way of categorizing the outcomes of evaluating individuals discovered online for a variety of social relationship goals that necessitate in-person meetings.

The dissertation also provides empirical contributions regarding how users leverage both profile pages and messaging interfaces in online dating systems to progress through the online dater evaluation process and make in-person meeting decisions (Chapters 8 and 9). This represents some of the first research to investigate the outcomes of online dating system users' in-person meeting decisions and how those decisions were made. These empirical contributions have been disseminated through publications in high quality venues such as CSCW, CHI, and GROUP [238–245].

This empirical knowledge, along with theory from the marriage literature, informed another contribution of the dissertation—a novel messaging interface design for online dating systems (Chapter 10). Additional empirical contributions of this dissertation stemmed from quantitative and qualitative assessment of the novel messaging interface

prototypes, which demonstrated the impact that the prototypes can have on online daters' in-person meeting decisions if such interfaces were implemented in commercially available online dating systems (Chapters 11 and 12). These interface designs and empirical contributions resulting from their assessment will be disseminated in several high quality conference and journal publications. Lastly, the research of this dissertation has produced real world impact: as of this writing three romantic relationships have been initiated between participants of the mixed methods field study.

CHAPTER 14

CONCLUDING DISCUSSION AND FUTURE WORK

14.1 Introduction

The work in this dissertation set out to explore how users of online dating systems determine whom they want to meet for face-to-face dates, with a focus on learning how messaging interaction informs these decisions, as well as the outcomes of initial in-person meetings. Two interview studies found that initial in-person meetings between online daters seldom result in a second meeting, which is commonly due to unenjoyable face-to-face interaction. Users struggle to foresee unenjoyable face-to-face interactions because of overt impression management and formation strategies that some users adopt online, particularly during messaging interactions. Motivated by literature on romantic relationship satisfaction, a research artifact in the form of a messaging interface was designed to prompt discussions between online daters around particular topics that would help them make better-informed in-person meeting decisions. Results from a mixed methods field study indicated that the research artifact affects users' evaluations of potential romantic partners in different ways, which suggests that users prioritize different types of information during messaging interaction.

This chapter provides a concluding discussion of the empirical findings of this dissertation. First, it leverages theory to explain how online dating system design encourages users to adopt strategies that may ultimately hamper their abilities to foresee unenjoyable face-to-face interactions and make the right decisions about meeting people face-to-face. The theoretical framework that motivated the research artifact intended to

address this problem is then reviewed, and theory related to the selection of romantic partners is referenced to explain why the research artifact did not support users as expected and to pose constructs for a new theoretical framework. This chapter concludes with an outline of directions for future work, building on the findings and insights gained from this dissertation work.

14.2 Reflecting on the Problem: Online Daters Struggle to Foresee Unenjoyable Face-to-Face Interactions

Through the first two studies of this dissertation it was learned that messaging interactions through online dating systems influence users' in-person meeting decisions, particularly for women, yet in-person meetings are often unsuccessful because face-to-face interactions are frequently unenjoyable. This common failure to foresee unenjoyable face-to-face interactions, despite having messaging interactions beforehand, may in part be due to overt impression management and impression formation strategies that dictate how some online daters use the messaging interface. These impression management and formation strategies are adopted by users as an attempt to maximize their chances of accomplishing their relationship goals, yet—perhaps ironically—these strategies seem to hamper their abilities to make successful in-person meeting decisions.

In this section, we review the central roles that impression formation and impression management play in the selection of a romantic partner. We then reflect on the impression management and formation strategies discovered in the first two studies of this dissertation and situate these strategies within the larger body of impression management and formation literature. This reflection serves to explore why online daters

adopt strategies that may ultimately lead to unsuccessful in-person meetings, and how current online dating system designs encourage user adoption of such strategies.

14.2.1 Impression Formation and Impression Management

People form impressions of potential romantic partners in order to decide whether to continue pursuing them for a particular relationship. These impressions are often derived from multiple pieces of information gathered over time and multiple exposures to the potential partner [13]. Several theories provide explanations of this decision making process. According to social exchange theory, decisions to continue pursuing a potential or actual romantic partner are the result of a continual cost-benefit analysis [209]. If the perceived or expected rewards of pursuing a potential romantic partner outweigh the perceived or expected costs, then pursuit or evaluation of that potential partner will continue. If the costs outweigh the rewards, then pursuit or evaluation of the potential romantic partner will discontinue.

Behavioral theory and attribute theory highlight interaction as a common way through which people form impressions of potential romantic partners and assess the costs and benefits of continuing a relationship. Specifically, behavioral theory posits that decisions to (dis)continue a relationship are the result of (un)enjoyable interactions with a particular person [90,91,93,123], and attribution theory would suggest that interaction plays such a pivotal role because dialogue and behavior during interaction signal a variety of traits relevant to romantic attraction [19,123].

Research has indicated that perceived rewards and costs of continuing evaluation of a potential romantic partner are not informed purely by the impression formed of the

potential romantic partner. Perceived costs and rewards can also be affected by choice, or having alternative potential partners to pursue [143,144]. Increasing the choice or quantity of potential romantic partners has been found to make people more selective [67] and can induce an assessment mindset while evaluating potential partners [58]. “An assessment mindset stresses critical evaluation of entities, states, or goals in comparison to available alternatives” [58] (p. 29). As quantity of potential romantic partners increases, an assessment mindset would make one more critical of each potential partner and therefore more likely to overemphasize the costs of pursuing any one of them for continued evaluation.

Forming impressions of potential romantic partners—and determining the costs and benefits of continuing evaluation—can be a challenging and complex process because people have a vested interest in manipulating how they are perceived by others. “Virtually everyone is attentive to, if not explicitly concerned about how he or she is perceived and evaluated by other people” [139]. This concern is the basis of impression management, or the act of self-presentation. Erving Goffman theorized impression management as a way to explain the “theatrical performances” that we undertake in our everyday social interactions to shape the way people see us [84]. According to Goffman, people attempt to manage their impressions through their actions and words because they want people to perceive them a certain way. Impression management motives and behavior may complicate evaluation of potential romantic partners because the self-perception that one aims to present may hide, exaggerate, or distort traits that are germane to romantic attraction.

Bozeman and Kacmar's self-regulation model [18] depicts impression management as a process where each person (an "actor") has a reference goal, which is the desired impression that the actor wants to convey to others. Actors then use the feedback they receive from other people to evaluate how they are being perceived and if they are achieving their reference goal. If such feedback indicates that the actor is not being perceived as intended, the actor will alter his or her behavior in an attempt to better convey the intended impression in future interactions.

14.2.2 Forming and Managing Impressions in Online Dating Systems

The research in this dissertation, along with prior work, has produced considerable knowledge of user strategies for forming and managing impressions through all stages of the online dater evaluation process, and how online dating system design encourages or influences adoption of these strategies. In some cases the particular strategies that users adopt can adversely affect their chances of successful in-person meetings. Below we discuss users' impression formation and management strategies as discovered in this dissertation and in prior work, and leverage theory to discuss their potentially adverse effects on in-person meeting decisions.

14.2.2.1 Pre-Match Evaluation.

The pre-match stage of online dater evaluation often begins with the discovery of a potential romantic partner's profile page. Most online dating systems facilitate the discovery of a near-endless number of profile pages, which induces an assessment mindset [58] where choices are evaluated more critically and against available alternatives (e.g., "is this potential partner more or less attractive than ones that I also just discovered?"). In terms of social exchange theory, this

abundance of profile pages leads users to emphasize the costs of continued evaluation over the benefits, namely the missed opportunities to discover potentially more attractive users that are “a mere mouse-click away” [58] (p. 29).

The first two studies in this dissertation revealed that users attempt to minimize this opportunity cost by adopting impression formation strategies for profile pages that emphasize detection of undesirable traits that are easy to deliberately convey and quickly assess in order to hastily reduce the overwhelming pool of potential partners. For example, several user strategies discovered for evaluating profile pages put an emphasis on “deal breakers,” or traits easily detected in most profile pages that are grounds for immediate disqualification of a potential partner (e.g., a minimum height preference). Prior work has described this approach to profile page evaluation with a shopping metaphor [107] in which profiles pages are perceived like product descriptions with key traits or product features that one finds (un)desirable. Similarly, prior research in laboratory settings has demonstrated that as the choice of online dating profiles increases, users adopt faster evaluation strategies that focus on the traits easiest to evaluate on the profile page (e.g., traits conveyed through clearly labeled demographic trait fields like age and height) [106,141] even if they are not necessarily the most pertinent to enjoyment of face-to-face dates.

This general approach to forming impressions from profile pages makes it highly likely that users will disqualify potential partners who may otherwise be evaluated favorably during messaging and face-to-face interaction, and put disproportionate focus on potential partners that have attractive characteristics in their profile page even if they bare little relevance to enjoyment of interaction during face-to-face dates.

In terms of impression management during the pre-match stage of online dater evaluation, users seem acutely aware of how profile pages are hastily and critically judged and some prior work has shown that users mildly exaggerate content in their profile pages in order to manipulate attractive impressions—and therefore attention—from potential partners [54,214]. While the research in this dissertation found little evidence of deception, the research did uncover strategies for carefully curated profile content that may give a misleading impression of what a person would be like face-to-face (e.g., stories in open-ended text fields to convey attractive traits).

14.2.2.2 Post-Match Evaluation. The profile page is the dominant source of content for managing and forming impressions during the pre-match stage of online dater evaluation. During the post-match stage, impression management and formation is done primarily through interaction using the online dating system’s messaging interface. Yet the real defining difference between the pre- and post-match stages of online dater evaluation is a match, which in this dissertation is characterized as two users explicitly expressing interest in each other (e.g., an exchange of messages or both users “liking” each other’s profile page).

The previous subsection argued that strategies for impression formation and impression management during the pre-match stage are triggered by excessive choice of potential romantic partners as represented with profile pages. Yet the multitude of potential partners discovered during the pre-match stage may or may not actually be interested in a respective user. One can expect that the choice or quantity of *interested* potential partners in an online dating system will be less than the total number of potential partners discovered. While an online dating system can control how few or how

many profile pages one can discover—thus subjecting all users equally to the effects of excessive choice during the pre-match stage—there is inherently going to be less uniformity in choice of potential partners in the post-match stage (i.e., some user profile pages are likely to be found more attractive by a larger number of people and those users will thus progress to the post-match stage of online dater evaluation more often). If choice of potential partners in the post-match stage of online dater evaluation stands to vary amongst users, their strategies for impression formation and impression management—and their prioritization of these processes—will vary as well.

The research in this dissertation found that users prioritize impression formation and impression management differently in the post-match stage based on the quantity of potential partners that regularly express interest in them (e.g., users that send messages to them). For users that are accustomed to receiving a lot of interest in online dating systems (typically women), they maintain their assessment mindset in the post-match stage of online dater evaluation. In terms of social exchange theory, the costs of continued evaluation in the post-match stage (i.e., missed opportunities for messaging interactions and dates with more attractive potential partners) consistently outweigh the benefits. This leads to impression formation strategies that promote hasty disqualification of potential partners whose messages are not immediately appealing. Like the strategies characteristic of the pre-match stage, these users engage in messaging interactions looking for reasons to reject a potential partner so that they can reduce the pool of users vying for their attention.

For users not accustomed to receiving a lot of interest/messages in an online dating system (typically men), the costs of continuing a messaging interaction seldom

outweigh the benefits and so these users tend not to have strict evaluation criteria or tendencies to hastily reject potential partners. Furthermore, these users understand that their potential partners do consider their messaging interactions to be costly and that such interactions can end abruptly if their messaging content is not deemed consistently appealing. This awareness—and associated anxiety about abrupt rejection—culminates in impression management becoming the predominant motive during messaging interactions. Motives for impression management dissuade these users from having “naturally flowing” conversations through the messaging interface, and instead encourage them to behave in ways that would maximize their chances of a response, such as by over-deliberating message content and re-using/copy-and-pasting message content that garnered attention in the past. While users accustomed to receiving ample attention during the post-match stage are scanning message content to detect reasons for rejection, users who do not receive ample attention assess messages they receive predominantly to find confirmation that they are successfully maintaining attention.

Importantly, these competing motivations—to one, harshly critique message content in order to slim down the still-overwhelming choice of interesting potential partners and two, create message content to manage an attractive impression and maintain attention from a limited quantity/choice of interested users—limit chances of users having messaging interactions that would be indicative of subsequent face-to-face interactions. This is because such impression formation and management strategies would not be practical during face-to-face interactions. For example, premeditated or over-deliberated verbal content could not be maintained over the entire duration of a face-to-face date. Similarly, hasty ejection from a date after one unappealing or subpar

verbal comment would be rude and impractical given the time and money presumably devoted to arriving at the date.

14.2.2.3 Initial In-Person Meeting. Prior to this dissertation, there was little empirical knowledge of the outcomes of online daters' initial in-person meetings and what factors contribute to these outcomes. The research in this dissertation discovered that initial in-person meetings between online daters seldom culminate in mutual desire for a second meeting. This was found to often be due to unenjoyable face-to-face interactions—and unappealing traits signaled through those interactions, such as personality—rather than deception or lack of physical attraction. Failure to foresee lack of enjoyment with face-to-face interactions is understandable in light of the impression formation and impression management strategies adopted by users online, which seem to be largely influenced by the quantity or choice of potential partners available to them during each stage of online dater evaluation.

The pre-match stage of online dater evaluation (during which users base their evaluations mostly on profile page content) provides minimal information that would help users predict enjoyment of face-to-face interaction because profile pages contain static information that is intended for a broad audience, whereas interaction is a reactive process of one person behaving and speaking in reaction to another. The excessive choice of profile pages discovered by users only worsens the value of profile content for predicting enjoyment of face-to-face dates, namely through impression management strategies of exaggerating attractive traits in profile page content to catch the attention of potential partners who adopt hasty, “shopping”-like approaches to impression formation

that emphasize traits that have little relevance to interaction (e.g., minimum height preferences).

The post-match stage of online dater evaluation should provide users with a better indication of what face-to-face interactions will be like because this stage of evaluation is characterized by interaction through a text-based messaging interface. Yet choice of interested potential partners—or rather, a disparity in this choice amongst users—promotes overly critical impression formation strategies and impression management strategies rife with premeditated message content which collectively provide little opportunity for messaging interactions that would be indicative of subsequent face-to-face interactions.

14.3 Reflecting on the Research Artifact: A Messaging Interface with Problem-Solving Discussion Prompts

Online daters commonly fail to make the right in-person meeting decisions. This chapter has argued this to be a result of impression formation and impression management strategies that users adopt online to help them cope with the (lack of) choice of potential partners available to them, but which also limit opportunities for online interactions that would be indicative of subsequent face-to-face interactions.

The research artifact designed in this dissertation intended to help online daters make better in-person meeting decisions by producing messaging interactions that are more similarly (un)enjoyable to subsequent face-to-face interactions. This took the form of a messaging interface that prompts two users to discuss a first-date conflict story (i.e., a story that depicts a conflict concerning a first date) that they either previously disagreed

or agreed on (called the prompted-disagreement interface and prompted-agreement interface, respectively—see Sub-section 11.2 for fuller explanations of these interfaces). This idea was informed by literature concerning marital satisfaction. Specifically, a series of studies from the 1970s found that discussions between married partners prompted with scenarios of marital conflicts that they initially disagreed on could predict relationship satisfaction at various points in time [119,158,159]. The VSA model of relationship satisfaction [123] has explained these results by suggesting that these discussion topics (generally called problem-solving discussion topics, or topics that prompt two partners to discuss a difference of opinion) are particularly conducive to the expression of traits pertinent to romantic attraction. If this model were to extend to potential romantic partners, messaging interfaces that prompt online daters with problem-solving discussion topics could yield interactions online that are similarly enjoyable to future, in-person interactions in which the richer, face-to-face context inherently supports signaling of attraction-relevant traits.

It was hypothesized that the prompted-disagreement and -agreement interfaces would help online daters make better in-person meeting decisions than the standard, open messaging interface in today's online dating systems. It was further hypothesized that the prompted-disagreement interface would be better than the prompted-agreement interface. Results from a mixed methods field study showed that the prompted interfaces do not affect online dater evaluation as expected. Results indicate that prompting users to discuss topics that they disagreed on does not help them make better face-to-face meeting decisions. Female daters are uncomfortable with an emphasis on disagreements because of anticipated arguments and men are indifferent to the interface because they seek

signals of attraction more so than compatibility. However, female users' decisions to meet face-to-face do benefit from a messaging interface that prompts users to discuss topics that they agreed on. In contrast, men's decisions to meet face-to-face are worsened by the same prompted-agreement interface due to misinterpreting an emphasized agreement as a signal of attraction from women.

In this section the unexpected results of the mixed methods field study are reflected upon. This includes a discussion of why the theory behind problem-solving discussion appears to fail to translate to potential romantic partners, and why the research artifact influences online dater evaluation differently amongst users. The section concludes by posing additional constructs that should be considered for a theoretical framework of messaging interaction between online daters.

14.3.1 Why Theory Behind Problem-Solving Discussions May Fail to Extend to Potential Romantic Partners

There are several reasons for why the theory behind problem-solving discussion topics may fail to translate to potential romantic partners. For one, partners in ongoing romantic relationships would have already spent extensive time interacting with and getting to know one another before engaging in a problem-solving discussion for a respective study. Online daters, in contrast, would be interacting with a potential partner for the very first time through a problem-solving discussion and they would have little information to base their impressions on prior to such a discussion. The problem-solving discussions, in this regard, likely impacted their impressions much more so than they would with married partners, and in ways potentially unrelated to the dialogue exchanged during the interaction. Specifically in regards to interactions prompted with a disagreement of

opinion, negativity implied by the disagreement can incur a psychological effect on online daters as they are trying to form impressions for new potential partners. This likely influenced impressions of potential partners online in ways that would not be replicated during subsequent face-to-face interactions where no disagreement of opinion was emphasized (see Sub-section 12.6.1 for a deeper discussion of these potential psychological effects, particularly on female daters).

In addition, the goals for impression formation and impression management are fundamentally different between partners in ongoing romantic relationships and potential romantic partners. In regards to social exchange theory, the costs and benefits of continuing an ongoing romantic relationship can be quite different than the costs and benefits of continuing impression formation of a potential romantic partner. For example, there are costs not just to continuing a romantic relationship, but to leaving one as well, such as the need to find new living arrangements, the possibility of needing to find a new source of income, effects on the relationship that a parent has with their children, and so on. Such costs simply do not exist in regards to continued evaluation or pursuit of a potential romantic partner (assuming one is single during this evaluation). As such, impressions formed during problem-solving discussions—and desires to fully discontinue evaluation/pursuit of a partner for romance—are likely to fluctuate much more dramatically between potential romantic partners compared to partners in an ongoing romantic relationships.

Similarly, the emphasis on impression management during interaction can change significantly when one is searching for a romantic partner compared to when one is already in a romantic partnership. Users of online dating systems must compete with

other suitors to attract a new potential partner and convince them to devote resources to activities with still-unknown outcomes such as dates and sexual encounters. By comparison, people in ongoing romantic relationships have demonstrated much more commitment to each other and thus likely feel less of a need to overtly manage the impression their partner has formed of them. This means that impression management may be a more prominent and conscious motive to online daters during problem-solving discussions than to partners in ongoing relationships. Furthermore, given the importance of feedback to monitoring one's self-presentation according to the self-regulation model [18], partners in ongoing relationships would have had several opportunities to gather feedback about how their behavior is successfully maintaining attraction and commitment from their relationship partner. The particular problem-solving discussions that they engage in are therefore unlikely to be used to further conscious impression management motives. Online daters on the other hand have almost no feedback about the impressions that potential partners have formed of them prior to messaging interactions online. There is thus a greater chance that they will use messaging interactions prompted with problem-solving topics to solicit feedback about the impressions being formed of them (i.e., their attractiveness to potential partners).

14.3.2 Why the Research Artifact Affected Online Daters in Different Ways

The previous sub-section posed explanations for why theory behind problem-solving discussions concerning marital partners may not translate to potential romantic partners such as online daters. Yet the research artifact created in this dissertation did affect online daters' evaluations of potential partners in the mixed methods field study. Such effects varied amongst study participants. Most notably, the prompted-agreement messaging

interface helped female daters make better in-person meeting decisions, yet the same interface hindered male daters in making in-person meeting decisions. How can we explain this difference? While differences between the male and female participants could simply be explained by gender, there is reason to suspect that gender may only be a superficial difference between these two groups of daters. As prior research has shown [63], in addition to the first two studies in this dissertation, female users of online dating systems tend to receive many more messages and from many more potential partners than male daters. Differences in the male and female groups of participants in the mixed methods field study may actually have been gauging disparities in choice of interested potential partners that participants are accustomed to having—and expect to continue to have—in online dating systems. As explained in Sub-section 14.2.2.2, (lack of) choice of interested potential partners in online dating systems can influence how online daters prioritize impression formation and impression management during messaging interactions because of the effect that choice has on the perceived costs of continuing evaluation of any one potential partner.

Users who are accustomed to ample choice of potential partners for messaging interactions will perceive the costs of continued evaluation of any one potential partner to consistently outweigh the benefits (namely, missed opportunities for messaging and face-to-face interaction with more attractive potential partners). These users will thus prioritize impression formation during messaging interaction in order to help them cull the pool of potential partners vying for their attention. A messaging interface that supports expression and detection of attraction-relevant traits—such as the prompted-agreement interface—would be helpful to these users. However, users who are not as accustomed to

ample choice of potential partners for messaging interactions will seldom consider the costs of continued evaluation to outweigh the benefits. They will prioritize impression management during messaging interaction and the detection of feedback that they are successfully maintaining an attractive impression. A messaging interface that emphasizes information (i.e., an agreement of opinion) that can be misinterpreted as feedback that they are or will be found attractive would be disadvantageous to these users.

The mixed methods field study did not directly investigate the choice of interested potential partners that participants were accustomed to having in their everyday online dating system-use (all participants in the quantitative component of the study had prior experience with online dating systems). However, the descriptive statistics from the study do provide indirect support for the notion that female participants were accustomed to having more choice than male participants: they wanted to exchange contact information with less potential partners that they met through the study than men, on average, and they had a higher percentage of their contact information requests reciprocated than men.

14.3.3 Towards a Theoretical Framework for Messaging Interaction between Potential Romantic Partners

Results of the mixed methods field study indicate that the VSA model [123] is not an adequate framework for messaging interactions between potential romantic partners such as online daters. While the research showed some indication that problem-solving discussions can signal attraction-relevant traits to some users and therefore better inform their in-person meeting decisions, there are some theoretical constructs related to social exchange theory that need to be added to a framework to better explain why the prompted

messaging interfaces would affect users' in-person meeting decisions differently. These constructs include:

1. **Choice or quantity of *interested* potential partners that users are accustomed to having in online dating systems** (e.g., quantity of users available or interested in a messaging interaction). According to social exchange theory and the work in the first two studies of this dissertation, users who are not accustomed to much choice of partners for messaging interactions tend to prioritize impression management over impression formation in order to maintain the limited attention they are receiving. Beneficial effects of messaging interface designs on online dater evaluation may fail to be realized by users who do not prioritize evaluation.
2. **The perceived costs of continuing evaluation of a potential romantic partner during messaging and/or face-to-face interaction.** Online daters who are accustomed to excessive choice of potential partners for messaging interactions tend to perceive the costs of continuing any one messaging interaction to consistently outweigh the benefits, namely because of missed opportunities to interact with more attractive potential partners. These costs can produce overly-critical standards during impression formation and a tendency to hastily discontinue impression formation of potential partners who do not meet these standards. So while benefits to online dater evaluation provided by messaging interface designs would likely be realized by users accustomed to excessive choice, the perceived costs of any one messaging interaction may lead users to prematurely conclude impression formation and make misinformed in-person meeting decisions.
3. **The perceived benefits of continuing evaluation of a potential romantic partner during messaging and/or face-to-face interaction.** The flipside of the perceived costs of continuing evaluation is the perceived benefit. Normally, online daters who do not perceive much benefit to continuing evaluation of a potential romantic partner will discontinue a messaging interaction with that user. Beneficial effects of messaging interface designs on online dater evaluation may be minimized if online daters do not perceive much benefit to continuing impression formation of potential partners during messaging interaction.

14.4 Future Work and Design Implications

Future work can more thoroughly explore the theoretical constructs that may be influencing online daters' disparate reactions to the prompted messaging interfaces designed in this dissertation and messaging interfaces to be designed in the future. For one, future assessments of messaging interfaces that include experienced online dating

system users as participants should explicitly gauge choice of potential romantic partners that participants are accustomed to having during messaging interactions in online dating systems. Alternatively, future studies could utilize a sample of participants with no online dating experience and therefore no assumptions of expectations of the choice of potential partners they will have available to them for messaging interactions.

In addition, future messaging interface assessments should gauge the perceived costs and benefits of continued messaging and/or face-to-face interaction with a given potential romantic partner. Participants could also be asked how, for a given messaging interaction, they prioritized or consciously pursued impression management relative to impression formation of a potential partner.

Future work can also broaden the demographic range participants included in the assessment of messaging interfaces. The participants in all studies of this dissertation were predominantly heterosexual and within the ages of early 20s to early to mid 30s. Future work can explore the theoretical implications of choice and perceived costs/benefits of continued evaluation of potential partners during messaging interaction with homosexual daters and daters from older age ranges.

The disparate approaches and reactions to messaging interfaces throughout this dissertation research also pose a broad design implication. Online daters prioritize different information when interacting with potential romantic partners online based on the amount of attention they are accustomed to receiving in online dating systems. Because users prioritize information about potential partners differently, a particular messaging interface design is likely to support some evaluation needs more than others, and can even mislead some users based on the information that the interface conveys

(e.g., the prompted-agreement interface for men). This suggests that a singular, “one size fits all” interaction interface cannot support all users equally in making in-person meeting decisions. An alternative would be to scaffold interaction interfaces with different sets of information to users based on their varying online dater evaluation needs. As this dissertation has demonstrated, one way systems could identify users’ varying evaluation needs is based on the choice or quantity of interested potential partners that they typically have available to them for messaging interactions.

APPENDIX A

LEAD RESEARCHER'S OKCUPID PROFILE PAGE

This appendix shows the profile page used by the lead researcher to contact *OkCupid* users with interview requests for study 1 (Chapter 8).

The screenshot shows the OkCupid profile page for user **doug_zytko**. The profile includes a photo, a self-summary, and a details table. The self-summary discusses the user's research on online dating and their goal to conduct interviews. The details table lists various attributes such as last online status, ethnicity, height, body type, diet, smoking, drinking, drug use, religion, sign, education, job, income, and offspring.

My Details	
Last Online	Online now!
Ethnicity	White
Height	5' 8" (1.73m).
Body Type	Skinny
Diet	Anything
Smokes	No
Drinks	Socially
Drugs	Never
Religion	—
Sign	—
Education	Working on Ph.D program
Job	Student
Income	—
Offspring	—

Figure A.1 The lead researcher's *OkCupid* profile page.

APPENDIX B

INTERVIEW REQUEST MESSAGE TO OKCUPID USERS

This appendix shows the content of the interview request message sent to *OkCupid* users in study 1 (Chapter 8).

Hi, my name is Doug Zytko. I'm a PhD student at New Jersey Institute of Technology and I've been interviewing OKCupid users about their experiences with online dating. We all know online dating sites aren't perfect, and the insight I glean in these interviews is integral to research that will be published around the world at academic conferences and aid in the improvement of systems like this one. Not to mention, you'd really be helping me out in constructing an amazing dissertation!

I would like to conduct an online interview through Skype or in-person interview with you at a place and time of your choosing (whichever you feel more comfortable with). I'll even buy the coffee! All information such as your profile, username, and any messages you share with me will be kept strictly confidential.

Let me know if you want to share your story! Feel free to call, e-mail, or message me at any time.

Thanks,

*Doug Zytko
NJIT
609 313 8009
daz2@njit.edu*

APPENDIX C

FINAL ITERATION OF INTERVIEW GUIDE FOR STUDY 1

This appendix shows the final iteration of the interview guide for *OkCupid* users in study 1 (Chapter 8).

-What do you do when you first get contacted by a new person? Walk me through the process.

(Ask then to go to their inbox and reference specific messages)

-How do you determine if you want to message that person back?

-How many new messages do you typically get a day?

(Ask then to go to their inbox and count the # for a day)

a. from new people?

b. from familiar people?

c. How many <other form of contact> do you receive a day?

-Do you typically respond to most messages sent to you?

a. Do you often respond/react to other methods of contact? (ratings, etc.)

-How much time passes between you receiving a message and responding? Is this intentional?

-Do you have any “deal breakers” when debating on whether to respond to a person?

(Ask then to go to their inbox and reference specific messages)

a. Are there particular messages you hate to get?

-Talk me through some messages you recently received that you really liked. What did you like about them?

(Ask then to go to their inbox and reference specific messages)

-When you're talking to another user through messaging, do you ever stop responding to their messages? Why?

Were there users you enjoyed talking to, but then they stopped talking to you? Why?

-What's the "next step" after interacting with a user you like? Do you exchange phone numbers? Set up a date on the site?

-How long are most of your interactions?

a. How many messages before you take it to the "next step"?

b. How much time passes from initial interaction before you take it to the "next step"?

-What do you wish you could do during communication on the site, but can't?

Self-Presentation

-How do you want people to view you on OkCupid? Is there a certain impression you want to give off?

(Probe about specific qualities. Make sure to differentiate intentional deception.)

-How do you try to convey that impression?

a. On profile page

--Phrase it like, "let's talk about your profile page. What are you trying to do there?"

b. In opening message

--How do you decide what to say in opening messages?

--Do you use the same line all the time?

--What are you "trying to do"?

--How many new people do you send messages to at a time?

c. During ongoing conversations

--And once a conversation gets going, what are you trying to do there? What are your goals?

-Do you think users on the site interpret you as intended?

(If not, make sure to pinpoint how they think they're getting misinterpreted. What are their frustrations?)

-Is there anything you wish you could do when contacting or interaction with other users, but can't?

In-Person Meetings

-Ok now talk to me about your dates or in-person meetings, whatever you want to call them.

-When do you decide to meet in-person?

(Be sure to touch on their confidence in online impressions. Is date just another step in impression formation?)

-Do you have a typical first date/meeting routine? A place you usually go?

-How many of your first dates/meetings resulted in a second date/meeting? Why did some not?

-When you met these people in-person, were they what you expected? What was different?

APPENDIX D

INTERVIEW REQUEST MESSAGE TO ONLINE DATING COACHES

This appendix shows the content of the interview request message sent to online dating coaches in study 2 (Chapter 9).

My name is Doug Zytke and I'm a PhD candidate at New Jersey Institute of Technology. My colleagues and I are currently running an expert study of online dating systems in which we interview select users and dating coaches about the behavior that they use and advocate. As a prominent online dating coach, we think you can provide a lot of value to this study that can help designers create even better online dating systems. These interviews generally take 30-45 minutes and would be conducted over Skype voice/video chat.

Here's a quick bit about what I'm working on: I spent the last two years interviewing "regular" online dating system users about the ways they self-present to and evaluate potential romantic partners online. Now I'm in the midst of an "expert user" study of self-presentation behavior within online dating systems. Part of this study involves interviews with "expert" users and dating coaches in order to elucidate why their self-presentation strategies yield successful first dates when research has indicated that users often struggle to be perceived as intended online.

You can have a look at my previous publications, including a year-long study I did of OkCupid users, on my website: <http://datingbydoug.com/research/>. Insight you provide through an interview would be the focal point of future conference and journal publications, which will lend scientific legitimacy to your behavioral advice. My schedule is pretty flexible—feel free to give a date for a Skype interview that works best for you.

Thanks,

*Doug Zytke
Smart Campus Lab
New Jersey Institute of Technology*

APPENDIX E

FIRST ITERATION OF INTERVIEW GUIDE FOR STUDY 2

This appendix shows the first iteration of the interview guide for online dating coaches in study 2 (Chapter 9).

Introductory Questions

- *Why did you start using online dating? When?*
- *What are your goals for using online dating?*
(probe relationship goals and life-related goals)
- *What online dating systems do you use?*
 - *Why did you join <x system>?*
 - *How long have you been using <x system>?*
 - *Did you ever take a hiatus/become inactive? Why?*
 - *Are there any that you've used in the past, but stopped using?*
- *How many users have you met in real life from online dating?*
(break down by system if possible)

Profile Pictures

- *Discuss the importance of profile pictures to your online dating success.*
 - *What is your objective with your profile pictures? What are you trying to accomplish?*
- *How many pictures do you include in your profile?*
 - *What "types" of pictures are must-haves in your profile?*
<discuss each picture type in detail>

- *Some sources that I've researched discuss ways of "testing" profile pictures. Do you have any methods for testing the effectiveness of your profile pictures?*
- *<Review intended impression of profile pictures as a whole>*

Profile Pages

- *Discuss the importance of written content in your profile page.*
- *What is your objective or objectives with your profile page? What are you trying to accomplish here?*
<get lots of examples>
- *Probe about:*
 - *Emotional reaction*
 - *Not taking online dating seriously*
 - *Demonstrating your value*
- *Do you test the content of your profile page? How?*

Private Messaging

- *What's your objective with private messaging?*
- *How do private messaging conversations usually begin?*
 - *Who usually initiates the conversation—you or the woman?*
- *When you send the first message, how do you evaluate a woman do determine if you want to message her?*
 - *How do you evaluate a woman that messages you first?*
- *When you initiate the conversation, what do you usually say in your opening message?*
 - *How do you typically respond to a woman that messages you first?*
- *Once a conversation has started, do you have a routine or process that you typically follow?*

- *Probe about:*
 - *c/p routines*
 - *# of messages before escalation*
 - *emotional polarity*
 - *role playing*
 - *vulnerability*
- *Do you ever intentional lie or deceive your communication partner during private messaging? Why?*
- *What do you do if a woman stops responding to your messages?*
- *Some resources I've looked into from the pickup artist community suggest that private messaging is a deficient tool for getting to know a woman and vice versa. Can you describe why this is?*
- *Are there any tools you would like to see added to online dating systems that would help you better convey your intended impression?*

Escalation

- *When do you escalate communication off the system? How?*
 - *When do you set up/arrange an in-person date?*
- *How do you communicate with your partner after escalating off the online dating system, but before the first date?*
- *Aside from arranging a first date, do you have any other objectives during communication off the system (through phone/text/etc.)?*
- *Do you encounter any struggles during the online dating process that we haven't previously discussed in other questions?*

APPENDIX F

FIRST-DATE CONFLICT STORIES

This appendix lists the 36 first-date conflict stories that were assessed on Amazon Mechanical Turk as part of the third study in this dissertation (Chapter 11). Each story had two “yes” or “no” opinion choices.

1. *Harry and Courtney had their first date a few nights ago. Courtney didn't feel a connection and she doesn't want to continue dating Harry. Today they are talking and Courtney plans to tell Harry that she no longer wants to date him. She says, "I'm sorry Harry, but you're not my type physically. I think it's best we stop seeing each other." Was this a good way for Courtney to reject Harry?*
2. *Harry and Courtney had their first date a few nights ago. Harry didn't feel a connection and he doesn't want to continue dating Courtney. Today they are talking and Harry plans to tell Courtney that he no longer wants to date her. He says, "I'm sorry Courtney, but you're not my type physically. I think it's best we stop seeing each other." Was this a good way for Harry to reject Courtney?*
3. *Tony and Joan just finished their first date. They had an easy-flowing conversation and discovered they have a lot in common. However, Tony, who is 6'1", learned that Joan is actually 5'7"—she had told him before the date that she was 5'10". This is a deal breaker for Tony—he decides to not go on any more dates with Joan because she lied about her height. Was this a good reason for Tony to reject Joan?*
4. *Tony and Joan just finished their first date. They had an easy-flowing conversation and discovered they have a lot in common. However, Joan, who is 5'3", learned that Tony is actually 5'10"—he had told her before the date that he was 6'1". This is a deal breaker for Joan—she decides to not go on any more dates with Tony because he lied about his height. Was this a good reason for Joan to reject Tony?*
5. *Malcolm and Rachel just finished their first date. They had an easy-flowing conversation and discovered they have a lot of things in common. However, Rachel learned that Malcolm is friends with her ex-boyfriend who she's no longer on speaking terms with. This is a deal breaker for Rachel—she decides not to go on any more dates with Malcolm because he's friends with her ex. Was this a good reason for Rachel to reject Malcolm?*

6. *Malcolm and Rachel just finished their first date. They had an easy-flowing conversation and discovered they have a lot of things in common. However, Malcolm learned that Rachel is friends with his ex-girlfriend who he's no longer on speaking terms with. This is a deal breaker for Malcolm—he decides not to go on any more dates with Rachel because she's friends with his ex. Was this a good reason for Malcolm to reject Rachel?*
7. *Frank and Lisa are on their first date and they are having a good time together. Near the end of the date they are discussing recent political topics including gay marriage when Frank asks Lisa, "have you ever had sex with another woman?" Lisa thinks about how she had a couple one-night stands with women in her younger adult years. He decides to answer "no." Was it okay for Lisa to lie in this situation?*
8. *Frank and Lisa are on their first date and they are having a good time together. Near the end of the date they are discussing recent political topics including gay marriage when Lisa asks Frank, "have you ever had sex with another man?" Frank thinks about how he had a couple one-night stands with men in his younger adult years. He decides to answer "no." Was it okay for Frank to lie in this situation?*
9. *Brian and Nancy are at a bar/restaurant for their first date. They are having an easy-flowing conversation and they discovered that they have a lot in common. While Nancy is telling a funny story about her job she hears a beep and takes her phone out of her purse to check a new text message she just received. Brian is bothered by this. Is his reaction to Nancy's behavior justified?*
10. *Brian and Nancy are at a bar/restaurant for their first date. They are having an easy-flowing conversation and they discovered that they have a lot in common. While Brian is telling a funny story about his job he hears a beep and takes his phone out of his pocket to check a new text message he just received. Nancy is bothered by this. Is her reaction to Brian's behavior justified?*
11. *Annabelle and Donald are at a bar/restaurant for their first date. They are having an easy-flowing conversation and they discovered that they have a lot in common. They both had one beer so far. Donald gets up to order more drinks at the bar and says, "the next one is on me." He returns with a beer for Annabelle and a Sprite for himself. Annabelle is bothered by this. Is her reaction to Donald's behavior justified?*

12. *Annabelle and Donald are at a bar/restaurant for their first date. They are having an easy-flowing conversation and they discovered that they have a lot in common. They both had one beer so far. Annabelle gets up to order more drinks at the bar and says, "the next one is on me." She returns with a beer for Donald and a Sprite for herself. Donald is bothered by this. Is his reaction to Annabelle's behavior justified?*
13. *Greg and Emily discovered each other through a dating app and they are planning their first date. Greg suggests that they meet up tomorrow night at Maxwell's Bar. Greg says he already made plans to go there with his friends tomorrow night and that he would like Emily to come hang out with them. Emily says this is not a good first date idea. Was Emily's reaction to this date idea justified?*
14. *Greg and Emily discovered each other through a dating app and they are planning their first date. Emily suggests that they meet up tomorrow night at Maxwell's Bar. Emily says she already made plans to go there with her friends tomorrow night and that she would like Greg to come hang out with them. Greg says this is not a good first date idea. Was Greg's reaction to this date idea justified?*
15. *Janice and Bill had their first date a few nights ago. Bill didn't feel a connection and he doesn't want to continue dating Janice. Today Janice sends a text message asking Bill when they are going out again. Bill responds, "Ah, not sure yet!" He then gradually responds less and less to Janice's messages until Janice stops sending messages. Was this a good way for Bill to reject Janice?*
16. *Janice and Bill had their first date a few nights ago. Janice didn't feel a connection and she doesn't want to continue dating Bill. Today Bill sends a text message asking Janice when they are going out again. Janice responds, "Ah, not sure yet!" She then gradually responds less and less to Bill's messages until Bill stops sending messages. Was this a good way for Janice to reject Bill?*
17. *Jack and Christine had their first date a few nights ago. Jack didn't feel a connection and he doesn't want to continue dating Christine. Today Christine sends a text message asking when they are going out again. Jack responds, "hey let's meet at the park later." When they're walking in the park Jack tells Christine that he no longer wants to continue dating her. Was this a good way for Jack to reject Christine?*
18. *Jack and Christine had their first date a few nights ago. Christine didn't feel a connection and she doesn't want to continue dating Jack. Today Jack sends a text message asking when they are going out again. Christine responds, "hey let's meet at the park later." When they're walking in the park Christine tells Jack that she no longer wants to continue dating him. Was this a good way for Christine to reject Jack?*

19. *Charlie and Stacy just finished their first date. They had an easy-flowing conversation and discovered they have a lot in common. However, Charlie learned that he makes, and will continue to make, a lot more money than Stacy. This is a deal breaker for Charlie—he decides not to go on any more dates with Stacy because of their salary disparity. Was this a good reason for Charlie to reject Stacy?*
20. *Charlie and Stacy just finished their first date. They had an easy-flowing conversation and discovered they have a lot in common. However, Stacy learned that she makes, and will continue to make, a lot more money than Charlie. This is a deal breaker for Stacy—she decides not to go on any more dates with Charlie because of their salary disparity. Was this a good reason for Stacy to reject Charlie?*
21. *Chad and Connie just finished their first date. They had an easy-flowing conversation and discovered they have a lot in common. However, during the date Chad admitted to Connie that he had cheated during his last relationship.. This is a deal breaker for Connie—she decides not to go on any more dates with Chad because he cheated in his last relationship. Was this a good reason for Connie to reject Chad?*
22. *Chad and Connie just finished their first date. They had an easy-flowing conversation and discovered they have a lot in common. However, during the date Connie admitted to Chad that she had cheated during her last relationship. This is a deal breaker for Chad—he decides not to go on any more dates with Connie because she cheated in her last relationship. Was this a good reason for Chad to reject Connie?*
23. *John and Emily are on their first date and they are having a good time together. Near the end of the date Emily asks John “are you dating other people right now?” John thinks about how he went on a date last week with a different woman and how he has another date scheduled with that woman tomorrow. John decides to answer “no.” Was it okay for John to lie in this situation?*
24. *John and Emily are on their first date and they are having a good time together. Near the end of the date John asks Emily “are you dating other people right now?” Emily thinks about how she went on a date last week with a different man and how she has another date scheduled with that man tomorrow. Emily decides to answer “no.” Was it okay for Emily to lie in this situation?*
25. *Tim and Anna are at a bar/restaurant for their first date. They are having an easy-flowing conversation and they discovered that they have a lot in common. They both ordered an alcoholic drink and an entrée. When the check arrives at the end of the date Anna goes to take her wallet out and notices that Tim does not attempt to take his out. Anna is bothered by this. Is her reaction to Tim’s behavior justified?*

26. *Tim and Anna are at a bar/restaurant for their first date. They are having an easy-flowing conversation and they discovered that they have a lot in common. They both ordered an alcoholic drink and an entrée. When the check arrives at the end of the date Tom goes to take his wallet out and notices that Anna does not attempt to take hers out. Tim is bothered by this. Is his reaction to Anna's behavior justified?*
27. *Luke and Marion are at a bar/restaurant for their first date. They are having an easy-flowing conversation and they discovered that they have a lot in common. They both ordered an alcoholic drink and an entrée. When the check arrives they both take their wallets out, but Marion says, "I got it." Luke insists on paying half, but Marion insists that she wants to pay. Luke is bothered by this. Is his reaction to Marion's behavior justified?*
28. *Luke and Marion are at a bar/restaurant for their first date. They are having an easy-flowing conversation and they discovered that they have a lot in common. They both ordered an alcoholic drink and an entrée. When the check arrives they both take their wallets out, but Luke says, "I got it." Marion insists on paying half, but Luke insists that he wants to pay. Marion is bothered by this. Is her reaction to Luke's behavior justified?*
29. *Danielle is waiting in a long line at Starbucks to order coffee on a Sunday afternoon. She notices that the guy in front of her is alone and he is scrolling through apps on his phone waiting for his turn to order. Danielle thinks he is really attractive. She is tempted to start a conversation with the guy and maybe get his phone number, but she is nervous. Should Danielle talk to the guy?*
30. *Max is waiting in a long line at Starbucks to order coffee on a Sunday afternoon. He notices that the girl in front of him is alone and she is scrolling through apps on her phone waiting for her turn to order. Max thinks she is really attractive. He is tempted to start a conversation with the girl and maybe get her phone number, but he is nervous. Should Max talk to the girl?*
31. *Kevin and Hazel met on a dating app and they are going on their first date tonight. A few hours before their date, Hazel sends Kevin a selfie in the mirror with her date outfit. She asks "what do you think?" The picture makes Kevin realize that he isn't physically attracted to Hazel at all. This is a deal breaker for Kevin, and he decides that he's going to cancel the date. Did he make the right decision?*
32. *Julia and Mark met on a dating app and they are going on their first date tonight. A few hours before their date, Mark sends Julia a selfie in the mirror with his date outfit. He asks "what do you think?" The picture makes Julia realize that she isn't physically attracted to Mark at all. This is a deal breaker for Julia, and she decides that she's going to cancel the date. Did she make the right decision?*

33. *Jake and Samantha are on their first date. They are having a good time together and the hours pass by quickly. It's getting late and they both need to work tomorrow. They agree they want to go on a second date. Samantha suggests this coming Thursday. Jake says "sorry I can't; I have a date scheduled with someone else that day." Samantha is bothered by this. Is her reaction to Jake's response justified?*
34. *Jake and Stephanie are on their first date. They are having a good time together and the hours pass by quickly. It's getting late and they both need to work tomorrow. They agree they want to go on a second date. Doug suggests this coming Thursday. Stephanie says "sorry I can't; I have a date scheduled with someone else that day." Doug is bothered by this. Is his reaction to Stephanie's response justified?*
35. *Janice and Bill had their first date a few nights ago. Janice didn't feel a connection and she doesn't want to continue dating Bill. Today Bill sends a text message asking Janice when they are going out again. Janice responds, "Ah, not sure yet!" She then gradually responds less and less to Bill's messages over the next week until Bill stops sending messages. Was this a good way for Janice to reject Bill?*
36. *Harry and Courtney had their first date a few nights ago. Courtney didn't feel a connection and she doesn't want to continue dating Harry. Today they are talking and Courtney plans to tell Harry that she doesn't want to go on a second date. She says, "I'm sorry Harry, but you're not my type physically. I think it's best we stop seeing each other." Was this a good way for Courtney to reject Harry?*

APPENDIX G

FACEBOOK AD FOR SPEED DATING EVENTS

The Facebook ad used to recruit daters for the speed dating events in the third and fourth study of this dissertation (Chapters 11 and 12) is provided below.

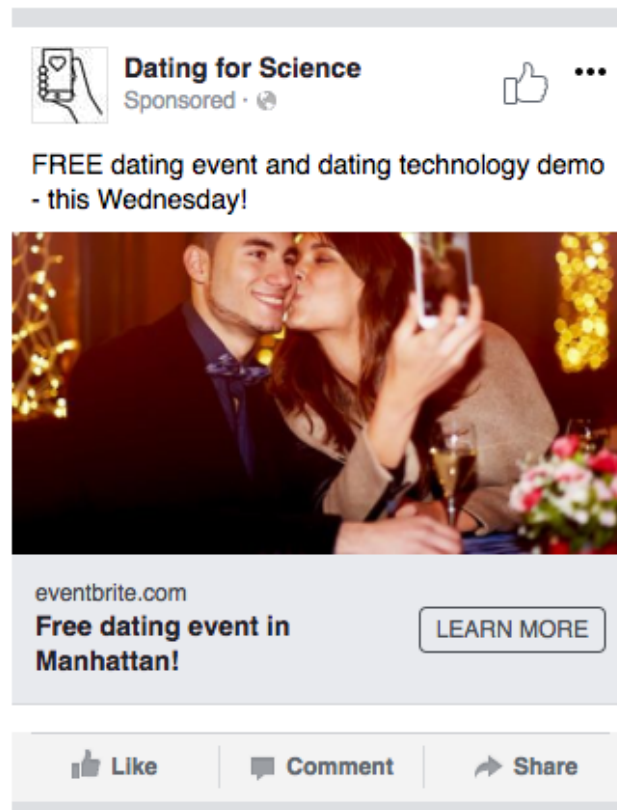


Figure G.1 The Facebook ad used to recruit daters for speed dating events, during which they were exposed to messaging interface variations for online dating systems.

APPENDIX H

SIGN UP SURVEY FOR SPEED DATING EVENTS

All daters that attended a speed dating event filled out the sign up survey online for a respective speed dating event prior to attending. The survey gathered the dater's full name, their e-mail address, gender and sexual preference, age, ethnicity, highest level of education completed, and the total number of months that they had been a user of at least one online dating website/app. Daters also uploaded a picture of themselves and selected opinion choices for eight first-date conflict stories.

1. *Input your first and last name (other daters will not see your last name).*
2. *Select your gender and sexual preference.*
 - a. *I am a man attracted to women*
 - b. *I am a woman attracted to men*
 - c. *Other*
3. *Input your age (be honest – none of the daters will see this).*
4. *How many total months have you been a user of at least one dating app/website?*
 - a. *0 months (I've never used a dating app/website)*
 - b. *1-3 months*
 - c. *4-6 months*
 - d. *7-12 months*
 - e. *More than 12 months*
5. *What is your highest level of education completed?*
 - a. *Some high school*
 - b. *High School Diploma or GED*
 - c. *Some College*
 - d. *Vocational School*
 - e. *Bachelor's Degree*
 - f. *Master's Degree*
 - g. *Doctoral Degree or equivalent*

6. *What is your ethnicity?*
 - a. *Asian or Pacific Islander*
 - b. *Black or African American*
 - c. *Native American or American Indian*
 - d. *White*
 - e. *Other*

7. *Are you Hispanic/Latino?*
 - a. *Yes*
 - b. *No*

8. *Please upload a picture that conveys what you look like. Other daters will see this in the dating technology at the dating event - please use an accurate picture! This step must be completed in order to participate in the dating event.*

Read the following dating stories and select the answer choice that best aligns with your opinion for each story. Please answer them honestly.

9. *Jake and Stephanie are on their first date. They are having a good time together and the hours pass by quickly. It's getting late and they both need to work tomorrow. They agree they want to go on a second date. Doug suggests this coming Thursday. Stephanie says "sorry I can't; I have a date scheduled with someone else that day." Doug is bothered by this. Is his reaction to Stephanie's response justified?*
 - a. *Yes, Jack should be bothered*
 - b. *No, Jack should not be bothered*

10. *Annabelle and Donald are at a bar/restaurant for their first date. They are having an easy-flowing conversation and they discovered that they have a lot in common. They both had one beer so far. Donald gets up to order more drinks at the bar and says, "the next one is on me." He returns with a beer for Annabelle and a Sprite for himself. Annabelle is bothered by this. Is her reaction to Donald's behavior justified?*
 - a. *Yes, Annabelle should be bothered by Donald returning with a beer for her and a Sprite for him*
 - b. *No, Annabelle should not be bothered by Donald returning with a beer for her and a Sprite for him*

11. *Brian and Nancy are at a bar/restaurant for their first date. They are having an easy-flowing conversation and they discovered that they have a lot in common. While Nancy is telling a funny story about her job she hears a beep and takes her phone out of her purse to check a new text message she just received. Brian is bothered by this. Is his reaction to Nancy's behavior justified?*
- Yes, Brian should be bothered by Nancy checking her new message*
 - No, Brian should not be bothered by Nancy checking her new message*
12. *Frank and Lisa are on their first date and they are having a good time together. Near the end of the date they are discussing recent political topics including gay marriage when Lisa asks Frank, "have you ever had sex with another man?" Frank thinks about how he had a couple one-night stands with men in his younger adult years. He decides to answer "no." Was it okay for Frank to lie in this situation?*
- Yes, it was okay for Frank to lie about his homosexual experiences*
 - No, it was not okay for Frank to lie about his homosexual experiences*
13. *Harry and Danielle just finished their first date. They had an easy-flowing conversation and discovered they have a lot of things in common. However, Harry learned that Danielle is friends with his ex-girlfriend who he's no longer on speaking terms with. This is a deal breaker for Harry—he decides not to go on any more dates with Danielle because she's friends with his ex. Was this a good reason for Harry to reject Danielle?*
- Yes, Danielle being friends with his ex was a good reason for Harry to reject Danielle*
 - No, Danielle being friends with his ex was not a good reason for Harry to reject Danielle*
14. *Tony and Joan just finished their first date. They had an easy-flowing conversation and discovered they have a lot in common. However, Joan, who is 5'3", learned that Tony is actually 5'10"—he had told her before the date that he was 6'1". This is a deal breaker for Joan—she decides to not go on any more dates with Tony because he lied about his height. Was this a good reason for Joan to reject Tony?*
- Yes, Tony's dishonesty about his height was a good reason for Joan to reject Tony*
 - No, Tony's dishonesty about his height was not a good reason for Joan to reject Tony*

15. *Julia and Mark met on a dating app and they are going on their first date tonight. A few hours before their date, Mark sends Julia a selfie in the mirror with his date outfit. He asks “what do you think?” The picture makes Julia realize that she isn’t physically attracted to Mark at all. This is a deal breaker for Julia, and she decides that she’s going to cancel the date. Did she make the right decision?*
- a. *Yes, Julia made the right decision*
 - b. *No, Julia did not make the right decision*
16. *Harry and Courtney had their first date a few nights ago. Courtney didn’t feel a connection and she doesn’t want to continue dating Harry. Today they are talking and Courtney plans to tell Harry that she no longer wants to date him. She says, “I’m sorry Harry, but you’re not my type physically. I think it’s best we stop seeing each other.” Was this a good way for Courtney to reject Harry?*
- a. *Yes, this was a good way for Courtney to reject Harry*
 - b. *No, this was not a good way for Courtney to reject Harry*

APPENDIX I

POST-PROFILE PAGE EVALUATION SURVEY

Daters who used the online dating system at the speed dating events filled out the post-profile page evaluation survey after viewing the profile page (first name and picture) of each of the eight opposite sex daters also using the online dating system at the respective event. This survey consisted of two questions. The hypothesis that each question relates to is identified with each question.

17. *If I had to make a choice right now, I would choose to go on a date with this person. (H2)*

- a. *Disagree strongly*
- b. *Disagree moderately*
- c. *Disagree a little*
- d. *Neither agree nor disagree*
- e. *Agree a little*
- f. *Agree moderately*
- g. *Agree strongly*

18. *I am very confident that I would answer the previous question the same way after meeting this person face-to-face for a speed date at this event. (H3)*

- a. *Disagree strongly*
- b. *Disagree moderately*
- c. *Disagree a little*
- d. *Neither agree nor disagree*
- e. *Agree a little*
- f. *Agree moderately*
- g. *Agree strongly*

APPENDIX J

POST-MESSAGING EVALUATION SURVEY

Daters who used the online dating system at the speed dating events filled out the post-messaging interface evaluation survey after using a messaging interface to interact with each of the eight opposite sex daters also using the online dating system at the respective event. This survey consisted of the following questions:

1. *If I had to make a choice right now, I would choose to go on a date with this person. (H2)*
 - h. *Disagree strongly*
 - i. *Disagree moderately*
 - j. *Disagree a little*
 - k. *Neither agree nor disagree*
 - l. *Agree a little*
 - m. *Agree moderately*
 - n. *Agree strongly*

2. *I am very confident that I would answer the previous question the same way after meeting this person face-to-face for a speed date at this event. (H3)*
 - a. *Disagree strongly*
 - b. *Disagree moderately*
 - c. *Disagree a little*
 - d. *Neither agree nor disagree*
 - e. *Agree a little*
 - f. *Agree moderately*
 - g. *Agree strongly*

3. *How would you rate the overall “impact” that this person’s statements had on you during your messaging interaction? (H1 – “impact rating” operationalization [119,158])*
 - a. *Super negative*
 - b. *Negative*
 - c. *Neutral*
 - d. *Positive*
 - e. *Super positive*

Answer the following questions about your messaging interaction with this person:

(H1 – “Enjoyment of interaction” index from the Rochester Interaction Record (RIR) [183])

4. *Quality (How pleasant was it?)*

Unpleasant 1 2 3 4 5 6 7 very pleasant

5. *Degree of closeness/camaraderie*

Very little 1 2 3 4 5 6 7 very much

6. *My level of satisfaction with the messaging interaction*

Dissatisfied 1 2 3 4 5 6 7 very satisfied

7. *I got from this messaging interaction...*

Less than I expected/hoped for 1 2 3 4 5 6 7 more than I expected/hoped for

APPENDIX K

POST-SPEED DATE EVALUATION SURVEY

After having a face-to-face speed date with a potential romantic partner, daters filled out the post-speed date evaluation survey. The survey was largely identical to the post-messaging interface evaluation survey, with the exceptions that daters were asked for their decision to exchange contact information with the respective potential partner and how accurate they considered the picture of the respective potential partner from the online dating system. Questions included:

1. *Do you want to exchange contact information with this person? (your contact information will be exchanged only if you both say “yes” to this question).*
 - a. *Yes, I want to exchange contact information*
 - b. *No, I do not want to exchange contact information*

2. *If I had to make a choice right now, I would choose to go on a date with this person. (H2)*
 - a. *Disagree strongly*
 - b. *Disagree moderately*
 - c. *Disagree a little*
 - d. *Neither agree nor disagree*
 - e. *Agree a little*
 - f. *Agree moderately*
 - g. *Agree strongly*

3. *How would you rate the overall “impact” that this person’s statements had on you during your face-to-face interaction? (H1 – “impact rating” operationalization [119,158])*
 - a. *Super negative*
 - b. *Negative*
 - c. *Neutral*
 - d. *Positive*
 - e. *Super positive*

Answer the following questions about your face-to-face interaction with this person:

(H1 – “Enjoyment of interaction” index from the Rochester Interaction Record (RIR) [183])

4. *Quality (How pleasant was it?)*

Unpleasant 1 2 3 4 5 6 7 very pleasant

5. *Degree of closeness/camaraderie*

Very little 1 2 3 4 5 6 7 very much

6. *My level of satisfaction with the messaging interaction*

Dissatisfied 1 2 3 4 5 6 7 very satisfied

7. *I got from this face-to-face interaction...*

Less than I expected/hoped for 1 2 3 4 5 6 7 more than I expected/hoped for

REFERENCES

- [1] Aaron C Ahuvia and Mara B Adelman. 1992. Formal intermediaries in the marriage market: A typology and review. *J. Marriage Fam.* (1992), 452–463.
- [2] Joshua Akehurst, Irena Koprinska, Kalina Yacef, Luiz Pizzato, Judy Kay, and Tomasz Rej. 2011. CCR - a content-collaborative reciprocal recommender for online dating. In *International Joint Conference on Artificial Intelligence (IJCAI)*, 2199–2204. DOI:<https://doi.org/10.5591/978-1-57735-516-8/IJCAI11-367>
- [3] Sheyna Sears-Roberts Alterovitz and Gerald a Mendelsohn. 2009. Partner preferences across the life span: online dating by older adults. *Psychol. Aging* 24, 2 (2009), 513–517. DOI:<https://doi.org/10.1037/a0015897>
- [4] Aziz Ansari and Eric Klinenberg. 2016. *Modern Romance*. London, United Kingdom: Penguin.
- [5] Kalman D Applbaum. 1995. Marriage with the proper stranger: Arranged marriage in metropolitan Japan. *Ethnology* 34, 1 (1995), 37–51.
- [6] Solomon Asch. 1946. Forming impressions of personality. *J. Abnorm. Psychol.* 41, (1946), 258–290. DOI:<https://doi.org/10.1037/h0060423>
- [7] Mitja D. Back, Stefan C. Schmukle, and Boris Egloff. 2008. Becoming friends by chance: Short report. *Psychol. Sci.* 19, 5 (2008), 439–440. DOI:<https://doi.org/10.1111/j.1467-9280.2008.02106.x>
- [8] Beth L Bailey. 1989. *From Front Porch to Back Seat: Courtship in Twentieth-Century America*. Baltimore, MD: JHU Press.
- [9] Peter Michael Bak. 2010. Sex differences in the attractiveness halo effect in the online dating environment. *J. Bus. Media Psychol.* 1, (2010), 1–7.
- [10] Roy F Baumeister, Ellen Bratslavsky, Catrin Finkenauer, and Kathleen D Vohs. 2001. Bad Is stronger than good. *Rev. Gen. Psychol.* 5, 4 (2001), 323–370. DOI:<https://doi.org/10.1037//1089-2680.5.4.323>

- [11] Charles R Berger and Richard J Calabrese. 1975. Some explorations in initial interaction and beyond: Toward a developmental theory of interpersonal communication. *Hum. Commun. Res.* 1, 2 (1975), 99–112.
- [12] Ellen Berscheid, Karen Dion, Elaine Walster, and G William Walster. 1971. Physical attractiveness and dating choice: A test of the matching hypothesis. *J. Exp. Soc. Psychol.* 7, 2 (1971), 173–189.
- [13] Ellen Berscheid and Elaine Hatfield. 1978. *Interpersonal Attraction*. Reading, MA: Addison-Wesley.
- [14] Jeremy Birnholtz, Colin Fitzpatrick, Mark Handel, and Jed R Brubaker. 2014. Identity, identification and identifiability: The language of self-presentation on a location-based mobile dating app. In *Proc. MobileHCI 2014*, 3–12. DOI:<https://doi.org/10.1145/2628363.2628406>
- [15] Courtney Blackwell, Jeremy Birnholtz, and Charles Abbott. 2014. Seeing and being seen: Co-situation and impression formation using Grindr, a location-aware gay dating app. *New Media Soc.* (2014), 1–20. DOI:<https://doi.org/10.1177/1461444814521595>
- [16] John Borneman. 2005. Marriage today. *Am. Ethnol.* 32, 1 (2005), 30–33.
- [17] Michael D Botwin, David M Buss, and Todd K Shackelford. 1997. Personality and mate preferences: five factors in mate selection and marital satisfaction. *J. Pers.* 65, 1 (1997), 107–136. DOI:<https://doi.org/10.1111/j.1467-6494.1997.tb00531.x>
- [18] Dennis P Bozeman and K Michele Kacmar. 1997. A cybernetic model of impression management processes in organizations. *Organ. Behav. Hum. Decis. Process.* 69, 1 (1997), 9–30.
- [19] Thomas N Bradbury and Frank D Fincham. 1990. Attributions in marriage: review and critique. *Psychol. Bull.* 107, 1 (1990), 3–33. DOI:<https://doi.org/10.1037/0033-2909.107.1.3>
- [20] Thomas N Bradbury and Frank D Fincham. 1991. A contextual model for advancing the study of marital interaction. *Cogn. Close Relationships* (1991), 127–147.
- [21] Thomas N Bradbury and Frank D Fincham. 1992. Attributions and behavior in marital interaction. *J. Pers. Soc. Psychol.* 63, 4 (1992), 613.

- [22] Matthew D Bramlett and William D Mosher. 2002. Cohabitation, marriage, divorce, and remarriage in the United States. *Vital Health Stat.* 23. 22 (2002), 1–93.
- [23] Lukas Brozovsky and Vaclav Petricek. 2007. Recommender system for online dating service. In *Proceedings of Conference Znalosti.*, 1–12.
- [24] Robert J Brym and Rhonda L Lenton. 2001. *Love Online: A Report on Digital Dating in Canada*. Toronto, Canada: MSN. CA.
- [25] Thomas D G Burgess and Stephen M. Sales. 1971. Attitudinal effects of “mere exposure”: A reevaluation. *J. Exp. Soc. Psychol.* 7, 4 (1971), 461–472. DOI:[https://doi.org/10.1016/0022-1031\(71\)90078-3](https://doi.org/10.1016/0022-1031(71)90078-3)
- [26] David M Buss. 1989. Sex differences in human mate preferences: Evolutionary hypothesis tested in 37 cultures. *Behav. Brain Sci.* 12, (1989), 1–49.
- [27] David M Buss. 1991. Evolutionary personality psychology. *Annu. Rev. Psychol.* 42, 1 (1991), 459–491.
- [28] David M. Buss. 2009. How can evolutionary psychology successfully explain personality and individual differences? *Perspect. Psychol. Sci.* 4, 4 (2009), 359–366.
- [29] David M. Buss and Heidi Greiling. 1999. Adaptive individual differences. *J. Pers.* 67, 2 (1999), 209–243. DOI:<https://doi.org/10.1111/1467-6494.00053>
- [30] David M. Buss and David P. Schmitt. 1993. Sexual strategies theory: An evolutionary perspective on human mating. *Psychol. Rev.* 100, 2 (1993), 204–232. DOI:<https://doi.org/10.1037/0033-295X.100.2.204>
- [31] David M Buss and Michael Barnes. 1986. Preferences in human mate selection. *J. Pers. Soc. Psychol.* 50, 3 (1986), 559–570. DOI:<https://doi.org/10.1037/0022-3514.50.3.559>
- [32] Donn Byrne. 1961. The influence of propinquity and opportunities for interaction on classroom relationships. *Hum. Relations* (1961).

- [33] Donn Byrne, Gerald L Clore Jr, and Philip Worchel. 1966. Effect of economic similarity-dissimilarity on interpersonal attraction. *J. Pers. Soc. Psychol.* 4, 2 (1966), 220.
- [34] John T Cacioppo, Stephanie Cacioppo, Gian C Gonzaga, Elizabeth L Ogburn, and Tyler J Vanderweele. 2013. Marital satisfaction and break-ups differ across on-line and off-line meeting venues. *Proc. Natl. Acad. Sci.* 110, 25 (2013), 10135–10140. DOI:<https://doi.org/10.1073/pnas.1222447110>
- [35] Julie H Carmalt, John Cawley, Kara Joyner, and Jeffery Sobal. 2008. Body weight and matching with a physically attractive romantic partner. *J. Marriage Fam.* 70, 5 (2008), 1287–1296.
- [36] Wen-Bin Chiou and Mu-Li Yang. 2010. The moderating role of need for cognition on excessive searching bias: A case of finding romantic partners online. *Annu. Rev. cybertherapy Telemed.* (2010), 120–122.
- [37] Danielle Couch and Pranee Liamputtong. 2008. Online dating and mating: The use of the internet to meet sexual partners. *Qual. Health Res* 18, 2 (2008), 268–279.
- [38] Mary J Culnan and M Lynne Markus. 1987. Information Technologies. In *Handbook of Organizational Communication: An Interdisciplinary Perspective*, F.M. Jablin, L.L. Putnam, K.H. Roberts and L.W. Porter (eds.). Thousand Oaks, CA: Sage Publications, Inc, 420–443.
- [39] Richard L Daft and Robert H Lengel. 1986. Organizational information requirements, media richness and structural design. *Manage. Sci.* 32, 5 (1986), 554–571.
- [40] David C DeAndrea. 2014. Advancing warranting theory. *Commun. Theory* 24, 2 (2014), 186–204.
- [41] Alan R Dennis and Susan T Kinney. 1998. Testing media richness theory in the new media: The effects of cues, feedback, and task equivocality. *Inf. Syst. Res.* 9, 3 (1998), 256–274.
- [42] Bella M DePaulo and Deborah A Kashy. 1998. Everyday lies in close and casual relationships. *J. Pers. Soc. Psychol.* 74, 1 (1998), 63.

- [43] Daantje Derks, A. E R Bos, and Jasper von Grumbkow. 2007. Emoticons and social interaction on the Internet: the importance of social context. *Comput. Human Behav.* 23, 1 (2007), 842–849. DOI:<https://doi.org/10.1016/j.chb.2004.11.013>
- [44] Karen Dion, Ellen Berscheid, and Elaine Walster. 1972. What is beautiful is good. *J. Pers. Soc. Psychol.* 24, 3 (1972), 285.
- [45] Judith Donath. 2007. *Signals, cues and meaning*. Personal communication.
- [46] Judith Donath. 2007. Signals in social supernets. *J. Comput. Commun.* 13, 1 (2007), 231–251. DOI:<https://doi.org/10.1111/j.1083-6101.2007.00394.x>
- [47] Cynthia Dickel Dunn. 2004. Cultural models and metaphors for marriage: An analysis of discourse at Japanese wedding receptions. *Ethos* 32, 3 (2004), 348–373.
- [48] Donald G Dutton and Arthur P Aron. 1974. Some evidence for heightened sexual attraction under conditions of high anxiety. *J. Pers. Soc. Psychol.* 30, 4 (1974), 510–517. DOI:<https://doi.org/10.1037/h0037031>
- [49] Portia S Dyrenforth, Deborah A Kashy, M Brent Donnellan, and Richard E Lucas. 2010. Predicting relationship and life satisfaction from personality in nationally representative samples from three countries: the relative importance of actor, partner, and similarity effects. *J. Pers. Soc. Psychol.* 99, 4 (2010), 690.
- [50] Paul W. Eastwick and Eli J. Finkel. 2008. Sex differences in mate preferences revisited: Do people know what they initially desire in a romantic partner? *J. Pers. Soc. Psychol.* 94, 2 (2008), 245–264. DOI:<https://doi.org/10.1037/0022-3514.94.2.245>
- [51] Paul W Eastwick, Eli J Finkel, and Alice H Eagly. 2011. When and why do ideal partner preferences affect the process of initiating and maintaining romantic relationships? *J. Personal. ...* 101, 5 (2011), 1012–32. DOI:<https://doi.org/10.1037/a0024062>
- [52] Paul W Eastwick, Laura B Luchies, Eli J Finkel, and Lucy L Hunt. 2014. The predictive validity of ideal partner preferences: a review and meta-analysis. *Psychol. Bull.* 140, 3 (2014), 623–65. DOI:<https://doi.org/10.1037/a0032432>

- [53] Ebbe B. Ebbesen, Glenn L. Kjos, and Vladimir J. Konečni. 1976. Spatial ecology: Its effects on the choice of friends and enemies. *Journal of Experimental Social Psychology* 12, 505–518. DOI:[https://doi.org/10.1016/0022-1031\(76\)90030-5](https://doi.org/10.1016/0022-1031(76)90030-5)
- [54] Nicole B Ellison, Jeffrey T Hancock, and Catalina L Toma. 2012. Profile as promise: A framework for conceptualizing veracity in online dating self-presentations. *New Media Soc.* 14, 1 (2012), 45–62. DOI:<https://doi.org/10.1177/1461444811410395>
- [55] Nicole Ellison, Rebecca Heino, and J. L. Gibbs. 2006. Managing impressions online: self-presentation processes in the online dating environment. *J. Comput. Commun.* 11, (2006), 415–441. DOI:<https://doi.org/10.1111/j.1083-6101.2006.00020.x>
- [56] Abraham I Felipe. 1970. Evaluative versus descriptive consistency in trait inferences. *J. Pers. Soc. Psychol.* 16, 4 (1970), 627.
- [57] Leon Festinger, Kurt W Back, and Stanley Schachter. 1950. *Social pressures in informal groups: A study of human factors in housing*. Stanford University Press.
- [58] E. J. Finkel, P. W. Eastwick, B. R. Karney, H. T. Reis, and S. Sprecher. 2012. Online Dating: A critical analysis from the perspective of psychological science. *Psychol. Sci. Public Interes.* 13, 1 (2012), 3–66. DOI:<https://doi.org/10.1177/1529100612436522>
- [59] Eli J. Finkel and Paul W. Eastwick. 2009. Arbitrary social norms influence sex differences in romantic selectivity: Research article. *Psychol. Sci.* 20, 10 (2009), 1290–1295. DOI:<https://doi.org/10.1111/j.1467-9280.2009.02439.x>
- [60] Eli J Finkel and Roy F Baumeister. 2010. Attraction and rejection. *Adv. Soc. Psychol. state Sci.* (2010), 419–459.
- [61] Eli J Finkel and Roy F Baumeister. 2010. Attraction and Rejection. In *Advanced Social Psychology: The State of the Science*, Roy F Baumeister and Eli J Finkel (eds.). New York, NY: Oxford University Press, 419–459.
- [62] Eli J Finkel, Paul W Eastwick, and Jacob Matthews. 2007. Speed-dating as an invaluable tool for studying romantic attraction: A methodological primer. *Pers. Relatsh.* 14, 1 (2007), 149–166.

- [63] Andrew T. Fiore, Lindsay Shaw Taylor, Xiaomeng Zhong, G. A. Mendelsohn, and Coye Cheshire. 2010. Who's right and who writes: People, profiles, contacts, and replies in online dating. In *Proceedings of the Annual Hawaii International Conference on System Sciences*, 1–10. DOI:<https://doi.org/10.1109/HICSS.2010.444>
- [64] Andrew T Fiore and Judith S Donath. 2005. Homophily in online dating: when do you like someone like yourself? In *CHI'05 Extended Abstracts on Human Factors in ...*, 1–4. DOI:<https://doi.org/10.1145/1056808.1056919>
- [65] Andrew T Fiore, Lindsay Shaw Taylor, G a Mendelsohn, and Marti Hearst. 2008. Assessing attractiveness in online dating profiles. In *Proceeding of the 26th Annual CHI Conference on Human Factors in Computing Systems CHI 08*, 797–806. DOI:<https://doi.org/10.1145/1357054.1357181>
- [66] Helen Fisher. 2009. *Why Him? Why Her?: Finding Real Love by Understanding Your Personality Type*. Basingstoke, United Kingdom: Macmillan.
- [67] Raymond Fisman, Sheena S Iyengar, Emik Kamenica, and Itamar Simonson. 2006. Gender differences in mate selection: Evidence from a speed dating experiment. *Q. J. Econ.* 121, May (2006), 673–697. DOI:<https://doi.org/10.1162/qjec.2006.121.2.673>
- [68] Colin Fitzpatrick, Jeremy Birnholtz, and Jed R Brubaker. 2015. Social and personal disclosure in a location-based real time dating app. In *System Sciences (HICSS), 2015 48th Hawaii International Conference on*, 1983–1992.
- [69] Garth J Fletcher, Jeffrey A Simpson, Geoff Thomas, and Louise Giles. 1999. Ideals in intimate relationships. *J. Pers. Soc. Psychol.* 76, 1 (1999), 72–89. DOI:<https://doi.org/10.1037/0022-3514.76.1.72>
- [70] Craig a. Foster, Betty S. Witcher, W. Keith Campbell, and Jeffrey D. Green. 1998. Arousal and attraction: Evidence for automatic and controlled processes. *J. Pers. Soc. Psychol.* 74, 1 (1998), 86–101. DOI:<https://doi.org/10.1037/0022-3514.74.1.86>
- [71] R Chris Fraley and Michael J Marks. 2010. Westermarck, Freud, and the incest taboo: does familial resemblance activate sexual attraction? *Personal. Soc. Psychol. Bull.* 36, 9 (2010), 1202–1212. DOI:<https://doi.org/10.1177/0146167210377180>

- [72] Jeana H Frost, Zoe Chance, Michael I Norton, and Dan Ariely. 2008. People are experience goods: Improving online dating with virtual dates. *J. Interact. Mark.* 22, 1 (2008), 51–61.
- [73] Madeleine A Fugère, Jennifer P Leszczynski, and Alita J Cousins. 2014. *The Social Psychology of Attraction and Romantic Relationships*. Palgrave Macmillan.
- [74] Faby M Gagne and John E Lydon. 2001. Mindset and close relationships: when bias leads to (in) accurate predictions. *J. Pers. Soc. Psychol.* 81, 1 (2001), 85.
- [75] David Gale and Lloyd S Shapley. 1962. College admissions and the stability of marriage. *Am. Math. Mon.* 69, 1 (1962), 9–15.
- [76] Francis Galton. 1949. *The Measurement of Character*. Upper Saddle River, NJ: Prentice-Hall, Inc.
- [77] Steven W. W Gangestad and Jeffrey a. a Simpson. 2000. The evolution of human mating: trade-offs and strategic pluralism. *Behav. Brain Sci.* 23, 4 (2000), 573-587-644. DOI:<https://doi.org/10.1017/S0140525X0000337X>
- [78] Justin R Garcia, Chris Reiber, Sean G Massey, and Ann M Merriwether. 2012. Sexual hookup culture: A review. *Rev. Gen. Psychol.* 16, 2 (2012), 161.
- [79] Jean Dickinson Gibbons and Subhabrata Chakraborti. 2011. Nonparametric statistical inference. In *International Encyclopedia of Statistical Science*. New York, NY: Springer, 977–979.
- [80] Jennifer L. Gibbs, Nicole B. Ellison, and Rebecca D. Heino. 2006. Self-presentation in online personals: The role of anticipated future interaction, self-disclosure, and perceived success in internet dating. *Communic. Res.* 33, 2 (2006), 152–177. DOI:<https://doi.org/10.1177/0093650205285368>
- [81] Jennifer L Gibbs, Nicole B Ellison, and Chih-Hui Lai. 2011. First comes love, then comes google: An investigation of uncertainty reduction strategies and self-disclosure in online dating. *Communic. Res.* 38, December 2010 (2011), 70–100. DOI:<https://doi.org/10.1177/0093650210377091>
- [82] Barney G Glaser and Anselm L Strauss. 2009. *The Discovery of Grounded Theory: Strategies for Qualitative Research*. Piscataway, NJ: Transaction publishers.

- [83] Joseph Glicksohn and Hilla Golan. 2001. Personality, cognitive style and assortative mating. *Pers. Individ. Dif.* 30, 7 (2001), 1199–1209.
- [84] Erving Goffman. 1978. *The Presentation of Self in Everyday Life*. New York, NY: Harmondsworth.
- [85] Joel A Gold, Richard M Ryckman, and Norman R Mosley. 1984. Romantic mood induction and attraction to a dissimilar other: Is love blind? *Personal. Soc. Psychol. Bull.* 10, 3 (1984), 358–368.
- [86] Lewis R Goldberg. 1993. The structure of phenotypic personality traits. *Am. Psychol.* 48, 1 (1993), 26–34. DOI:<https://doi.org/10.1037/0003-066X.48.12.1302>
- [87] Gian C Gonzaga, Belinda Campos, and Thomas Bradbury. 2007. Similarity, convergence, and relationship satisfaction in dating and married couples. *J. Pers. Soc. Psychol.* 93, 1 (2007), 34–48. DOI:<https://doi.org/10.1037/0022-3514.93.1.34>
- [88] Gian C Gonzaga, Steve Carter, and J GALEN BUCKWALTER. 2010. Assortative mating, convergence, and satisfaction in married couples. *Pers. Relatsh.* 17, 4 (2010), 634–644.
- [89] Claudia González-Vallejo and Elizabeth Moran. 2001. The evaluability hypothesis revisited: Joint and separate evaluation preference reversal as a function of attribute importance. *Organ. Behav. Hum. Decis. Process.* 86, 2 (2001), 216–233.
- [90] John M Gottman. 1982. Temporal form: toward a new language for describing relationships. *J. Marriage Fam.* 44, 4 (1982), 943–962.
- [91] John M Gottman. 1990. How marriages change. *Depress. Aggress. Fam. Interact.* (1990), 75–101.
- [92] John Mordechai Gottman. 1993. A theory of marital dissolution and stability. *J. Fam. Psychol. No. 1* 7, 1 (1993), 57–75. DOI:<https://doi.org/10.1037/0893-3200.7.1.57>
- [93] John Mordechai Gottman. 2014. *What predicts divorce?: The relationship between marital processes and marital outcomes*. Psychology Press.
- [94] Alan Grafen. 1990. Biological signals as handicaps. *J. Theor. Biol.* 144, 4 (1990), 517–546.

- [95] Tobias Greitemeyer. 2010. Effects of reciprocity on attraction: The role of a partner's physical attractiveness. *Pers. Relatsh.* 17, 2 (2010), 317–330. DOI:<https://doi.org/10.1111/j.1475-6811.2010.01278.x>
- [96] Rosanna E. Guadagno, Bradley M. Okdie, and Sara A. Kruse. 2012. Dating deception: Gender, online dating, and exaggerated self-presentation. *Comput. Human Behav.* 28, 2 (2012), 642–647. DOI:<https://doi.org/10.1016/j.chb.2011.11.010>
- [97] Alexandre Guillemoz. 1992. Seoul, the widow, and the mudang: Transformations of urban korean shamanism. *Diogenes* 40, 158 (1992), 115–127.
- [98] Jeffrey A Hall. 2014. First comes social networking, then comes marriage? Characteristics of Americans married 2005--2012 who met through social networking sites. *Cyberpsychology, Behav. Soc. Netw.* 17, 5 (2014), 322–326.
- [99] Jeffrey A. Hall. 2015. Sexual selection and humor in courtship: A case for warmth and extroversion. *Evol. Psychol.* 13, 3 (2015), 1–10. DOI:<https://doi.org/10.1177/1474704915598918>
- [100] Jeffrey A Hall, Namkee Park, Hayeon Song, and Michael J Cody. 2010. Strategic misrepresentation in online dating: The effects of gender, self-monitoring, and personality traits. *J. Soc. Pers. Relat.* 27, 1 (2010), 117–135. DOI:<https://doi.org/10.1177/0265407509349633>
- [101] Jeffrey T. Hancock, Catalina Toma, and Nicole Ellison. 2007. The truth about lying in online dating profiles. In *CHI Proceedings*, 449–452. DOI:<https://doi.org/10.1145/1240624.1240697>
- [102] Jeffrey T. Hancock and Catalina L. Toma. 2009. Putting your best face forward: The accuracy of online dating photographs. *J. Commun.* 59, 2 (2009), 367–386. DOI:<https://doi.org/10.1111/j.1460-2466.2009.01420.x>
- [103] Ali Abu Hashish and Mark Allen Peterson. 1999. Computer khatbas: Databases and marital entrepreneurship in modern Cairo. *Anthropol. Today* 15, 6 (1999), 7–11.
- [104] E Hatfield, E S S Hutchison, L Bensman, D M Young, and R L Rapson. 2012. Cultural, social, and gender influences on casual sex: New developments. *Soc. Psychol. New Dev.* (2012).

- [105] Tim B Heaton and Edith L Pratt. 1990. The effects of religious homogamy on marital satisfaction and stability. *J. Fam. Issues* 11, 2 (1990), 191–207.
- [106] Fritz Heider. 1958. *Interpersonal Relations*. New York, NY: Wiley.
- [107] Rebecca D Heino, Nicole B Ellison, and Jennifer L Gibbs. 2010. Relationshopping: Investigating the market metaphor in online dating. *J. Soc. Pers. Relat.* 27, 4 (2010), 427–447. DOI:<https://doi.org/10.1177/0265407510361614>
- [108] Reuben Hill. 1945. Campus values in mate selection. *J. Home Econ.* 37, 554 (1945), 269.
- [109] Gunter J Hitsch, Ali Hortaçsu, and Dan Ariely. 2010. Matching and sorting in online dating. *Am. Econ. Assoc.* 100, 1 (2010), 130–163.
- [110] Günter J Hitsch, Ali Hortaçsu, and Dan Ariely. 2010. What makes you click? — mate preferences and matching outcomes in online dating. *Quant. Mark. Econ.* 449625, (2010), 1–37. DOI:<https://doi.org/10.1007/s11129-010-9088-6>
- [111] Sture Holm. 1979. A simple sequentially rejective multiple test procedure. *Scand. J. Stat.* (1979), 65–70.
- [112] Marian L Houser, Sean M Horan, and Lisa A. Furler. 2008. Dating in the fast lane: How communication predicts speed-dating success. *J. Soc. Pers. Relat.* 25, 5 (2008), 749–768. DOI:<https://doi.org/10.1177/0265407508093787>
- [113] Renate Houts, Elliot Robins, and Ted L Huston. 1996. Compatibility and the development of premarital relationships. *J. Marriage Fam.* 58, 1 (1996), 7–20.
- [114] Ted L Huston and Robert L Burgess. 1979. Social exchange in developing relationships: An overview. *Soc. Exch. Dev. relationships* (1979), 3–28.
- [115] Ted L Huston, Catherine A Surra, Nancy M Fitzgerald, Rodney M Cate, and others. 1981. From courtship to marriage: Mate selection as an interpersonal process. *Pers. Relatsh.* 2, (1981), 53–88.
- [116] Sheena Iyengar. 2010. *The Art of Choosing*. New York, NY: Twelve.

- [117] Sheena S Iyengar, I Simonson, R Fisman, and C Mogilner. 2005. I know what I want but can I find it? Examining the dynamic relationship between stated and revealed preferences. In *Annual Meeting of the Society for Personality and Social Psychology (SPSP), New Orleans, LA*.
- [118] L. Crystal Jiang, Natalie N. Bazarova, and Jeffrey T. Hancock. 2011. The disclosure-intimacy link in computer-mediated communication: An attributional extension of the hyperpersonal model. *Hum. Commun. Res.* 37, 1 (2011), 58–77. DOI:<https://doi.org/10.1111/j.1468-2958.2010.01393.x>
- [119] Gottman John, Notarius Cliff, Markman Howard, Bank Steve, Yoppi Bruce, and Rubin Mary Ellen. 1976. Behavior exchange theory and marital decision making. *J. Pers. Soc. Psychol.* 34, 1 (1976), 14–23. DOI:<https://doi.org/10.1037/0022-3514.34.1.14>
- [120] Matthew D Johnson, Catherine L Cohan, Joanne Davila, Erika Lawrence, Ronald D Rogge, Benjamin R Karney, Kieran T Sullivan, and Thomas N Bradbury. 2005. Problem-solving skills and affective expressions as predictors of change in marital satisfaction. *J. Consult. Clin. Psychol.* 73, 1 (2005), 15–27. DOI:<https://doi.org/10.1037/0022-006X.73.1.15>
- [121] Peter K Jonason, Norman P Li, and Jessica Richardson. 2011. Positioning the booty-call relationship on the spectrum of relationships: sexual but more emotional than one-night stands. *J. Sex Res.* 48, 5 (2011), 486–495. DOI:<https://doi.org/10.1080/00224499.2010.497984>
- [122] Edward E Jones, Leslie Rock, Kelly G Shaver, George R Goethals, and Lawrence M Ward. 1968. Pattern of performance and ability attribution: An unexpected primacy effect. *J. Pers. Soc. Psychol.* 10, 4 (1968), 317.
- [123] Benjamin R Karney and Thomas N Bradbury. 1995. The longitudinal course of marital quality and stability: A review of theory, methods, and research. *Psychol. Bull.* 118, 1 (1995), 3–34. DOI:<https://doi.org/http://dx.doi.org/10.1037/0033-2909.118.1.3>
- [124] Kevin L Keller and Richard Staelin. 1987. Effects of quality and quantity of information on decision effectiveness. *J. Consum. Res.* 14, 2 (1987), 200–213. DOI:<https://doi.org/Doi.10.1086/209106>
- [125] Harold H Kelley. 1950. The warm-cold variable in first impressions of persons. *J. Pers.* 18, 4 (1950), 431–439.

- [126] Douglas T. Kenrick, Edward K. Sadalla, Gary E. Groth, and Melanie R. Trost. 1990. Evolution, traits, and the stages of human courtship: qualifying the parental investment model. *J. Pers.* 58, 1 (1990), 97–116. DOI:<https://doi.org/10.1111/j.1467-6494.1990.tb00909.x>
- [127] Sara Kiesler, Jane Siegel, and Timothy W McGuire. 1984. Social psychological aspects of computer-mediated communication. *Am. Psychol.* 39, 10 (1984), 1123.
- [128] Moonja Park Kim and Seymour Rosenberg. 1980. Comparison of two structural models of implicit personality theory. *J. Pers. Soc. Psychol.* 38, 3 (1980), 375.
- [129] Derek A. Kreager, Shannon E. Cavanagh, John Yen, and Mo Yu. 2014. “Where have all the good men gone?” Gendered interactions in online dating. *J. Marriage Fam.* 76, 2 (2014), 387–410. DOI:<https://doi.org/10.1111/jomf.12072>
- [130] Tim Kreider. True stories: Getting offline. *Nerve*. Retrieved June 1, 2016 from <http://www.nerve.com/love-sex/true-stories/true-stories-getting-offline>
- [131] Douglas S Krull, Michelle Hui-Min Loy, Jennifer Lin, Ching-Fu Wang, Suhong Chen, and Xudong Zhao. 1999. The fundamental attribution error: Correspondence bias in individualist and collectivist cultures. *Personal. Soc. Psychol. Bull.* 25, 10 (1999), 1208–1219.
- [132] Madoka Kumashiro, Caryl E Rusbult, Catrin Finkenauer, and Shevaun L Stocker. 2007. To think or to do: The impact of assessment and locomotion orientation on the Michelangelo phenomenon. *J. Soc. Pers. Relat.* 24, 4 (2007), 591–611.
- [133] Robert Kurzban and Jason Weeden. 2005. HurryDate: Mate preferences in action. *Evol. Hum. Behav.* 26, 3 (2005), 227–244. DOI:<https://doi.org/10.1016/j.evolhumbehav.2004.08.012>
- [134] Tracy Kwang and Willian B. Swann. 2010. Do people embrace praise even when they feel unworthy? A review of critical tests of self-enhancement versus self-verification. *Personal. Soc. Psychol. Rev.* 14, 3 (2010), 263–280. DOI:<https://doi.org/10.1177/1088868310365876>
- [135] Simon P Lailvaux, Leeann T Reaney, and Patricia R Y Backwell. 2009. Dishonest signalling of fighting ability and multiple performance traits in the fiddler crab *Uca mjoebergi*. *Funct. Ecol.* 23, 2 (2009), 359–366.

- [136] Wayne W LaMorte. 2017. When to Use a Nonparametric Test. *Boston University School of Public Health*. Retrieved April 30, 2018 from http://sphweb.bumc.bu.edu/otlt/MPH-Modules/BS/BS704_Nonparametric/BS704_Nonparametric2.html
- [137] David Landy and Harold Sigall. 1974. Beauty is talent: Task evaluation as a function of the performer's physical attractiveness. *J. Pers. Soc. Psychol.* 29, 3 (1974), 299.
- [138] Edward O Laumann. 1994. *The Social Organization of Sexuality: Sexual Practices in the United States*. Chicago, IL: University of Chicago Press.
- [139] Mark R Leary and Robin M Kowalski. 1990. Impression management: A literature review and two-component model. *Psychol. Bull.* 107, 1 (1990), 34–47. DOI:<https://doi.org/10.1037/0033-2909.107.1.34>
- [140] Andrew M Ledbetter. 2008. Chronemic cues and sex differences in relational e-mail: perceiving immediacy and supportive message quality. *Soc. Sci. Comput. Rev.* (2008).
- [141] Alison P. Lenton, Barbara Fasolo, and Peter M. Todd. 2009. The relationship between number of potential mates and mating skew in humans. *Anim. Behav.* 77, 1 (2009), 55–60. DOI:<https://doi.org/10.1016/j.anbehav.2008.08.025>
- [142] Alison P. Lenton and Amanda Stewart. 2008. Changing her ways: The number of options and mate-standard strength impact mate choice strategy and satisfaction. *Judgm. Decis. Mak.* 3, 7 (2008), 501–511. Retrieved from <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.419.9483&rep=rep1&type=pdf>
- [143] Alison P Lenton and Marco Francesconi. 2010. How humans cognitively manage an abundance of mate options. *Psychol. Sci.* 21, 4 (2010), 528–533. DOI:<https://doi.org/10.1177/0956797610364958>
- [144] Alison P Lenton and Marco Francesconi. 2011. Too much of a good thing? Variety is confusing in mate choice. *Biol. Lett.* 7, 4 (2011), 528–31. DOI:<https://doi.org/10.1098/rsbl.2011.0098>
- [145] George Levinger. 1976. A social psychological perspective on marital dissolution. *J. Soc. Issues* 32, 1 (1976), 21–47.

- [146] George Levinger and Marylyn Rands. 1985. Compatibility in marriage and other close relationships. In *Compatible and incompatible relationships*. Springer, 309–331.
- [147] Richard W Lewak, James A Wakefield, and Peter F Briggs. 1985. Intelligence and personality in mate choice and marital satisfaction. *Pers. Individ. Dif.* 6, 4 (1985), 471–477.
- [148] Christian Licoppe, C.A. Riviere, and J. Morel. 2016. Proximity awareness and the privatization of sexual encounters with strangers The case of Grindr. In *Context Collapse: Re-assembling the Spatial*, Carolyn Marvin, Sun-Ha Hong and Barbie Zelizer (eds.). London, UK: Routledge.
- [149] Yvonna S Lincoln. 1985. Naturalistic inquiry. *Blackwell Encycl. Sociol.* (1985).
- [150] Anthony C Little, Lisa M DeBruine, and Benedict C Jones. 2014. Sex differences in attraction to familiar and unfamiliar opposite-sex faces: men prefer novelty and women prefer familiarity. *Arch. Sex. Behav.* 43, 5 (2014), 973–981.
- [151] Pasquale Lops, Marco De Gemmis, and Giovanni Semeraro. 2011. Content-based recommender systems: State of the art and trends. “*Recommender Syst. handbook*” (2011), 73–105. DOI:https://doi.org/10.1007/978-0-387-85820-3_3
- [152] Bobbi S Low. 2003. Ecological and social complexities in human monogamy. In *Monography: Mating Strategies and Partnerships in Birds, Humans, and Other Mammals*, U.H. Reichard and Christopher Boesch (eds.). Cambridge University Press, 161–176. DOI:<https://doi.org/10.1017/CBO9781139087247.011>
- [153] Abraham S Luchins. 1958. Definitiveness of impression and primacy-recency in communications. *J. Soc. Psychol.* 48, 2 (1958), 275–290.
- [154] Shanhong Luo, Hao Chen, Guoan Yue, Guangjian Zhang, Ruixue Zhaoyang, and Dan Xu. 2008. Predicting marital satisfaction from self, partner, and couple characteristics: Is it me, you, or us? *J. Pers.* 76, 5 (2008), 1231–1266. DOI:<https://doi.org/10.1111/j.1467-6494.2008.00520.x>
- [155] Shanhong Luo and Eva C Klohnen. 2005. Assortative mating and marital quality in newlyweds: a couple-centered approach. *J. Pers. Soc. Psychol.* 88, 2 (2005), 304–326. DOI:<https://doi.org/10.1037/0022-3514.88.2.304>

- [156] Shanhong Luo and Guangjian Zhang. 2009. What Leads to Romantic Attraction: similarity, reciprocity, security, or beauty? Evidence from a speed-dating study. *J. Pers.* 77, 4 (2009), 933–964.
- [157] Naresh K Malhotra. 1982. Information load and consumer decision making. *J. Consum. Res.* (1982), 419–430.
- [158] Howard J Markman. 1979. Application of a behavioral model of marriage in predicting relationship satisfaction of couples planning marriage. *J. Consult. Clin. Psychol.* 47, 4 (1979), 743–749. DOI:<https://doi.org/10.1037/0022-006X.47.4.743>
- [159] Howard J Markman. 1981. Prediction of marital distress: a 5-year follow-up. *J. Consult. Clin. Psychol.* 49, 5 (1981), 760.
- [160] Christina Masden and W Keith Edwards. 2015. Understanding the role of community in online dating. In *CHI Proceedings*, 535–544. DOI:<https://doi.org/10.1145/2702123.2702417>
- [161] Katelyn Y.A. McKenna, Amie S. Green, and Marci E. J. Gleason. 2002. Relationship formation on the internet: what’s the big attraction? *J. Soc. Issues* 58, 1 (2002), 9–31. DOI:<https://doi.org/10.1111/1540-4560.00246>
- [162] Miller Mcpherson and Lynn Smith-lovin. 2016. Birds of a feather : Homophily in social networks. *Annu. Rev. Sociol.* 27, 2001 (2016), 415–444.
- [163] Cindy M. Meston and Penny F. Frohlich. 2003. Love at first fright: Partner salience moderates roller-coaster-induced excitation transfer. *Arch. Sex. Behav.* 32, 6 (2003), 537–544. DOI:<https://doi.org/10.1023/A:1026037527455>
- [164] R. Matthew Montoya. 2008. I’m hot, so I’d say you’re not: the influence of objective physical attractiveness on mate selection. *Personal. Soc. Psychol. Bull.* 34, 10 (2008), 1315–1331. DOI:<https://doi.org/10.1177/0146167208320387>
- [165] Anna Moore. How Tinder took me from serial monogamy to casual sex. *The Guardian*. Retrieved from <http://www.theguardian.com/lifeandstyle/2014/sep/28/tinder-serial-monogamy-casual-sex>
- [166] Richard L Moreland and Scott R Beach. 1992. Exposure effects in the classroom: The development of affinity among students. *J. Exp. Soc. Psychol.* 28, 3 (1992), 255–276.

- [167] Dale T Mortensen. 1988. Matching: finding a partner for life or otherwise. *Am. J. Sociol.* (1988), S215--S240.
- [168] Laura P Naumann, Simine Vazire, Peter J Rentfrow, and Samuel D Gosling. 2009. Personality judgments based on physical appearance. *Personal. Soc. Psychol. Bull.* 35, 12 (2009), 1661–1671. DOI:<https://doi.org/10.1177/0146167209346309>
- [169] Muriel Niederle and Alvin E. Roth. 2003. Unraveling reduces mobility in a labor market: Gastroenterology with and without a centralized match. *J. Polit. Econ.* 111, 6 (2003), 1342–1352. DOI:<https://doi.org/10.1086/378530>
- [170] Muriel Niederle, Alvin E Roth, and Tayfun Sonmez. 2007. Matching. *New Palgrave Dict. Econ.* (2007), 1–17.
- [171] Richard E. Nisbett and Timothy D. Wilson. 1977. The halo effect: Evidence for unconscious alteration of judgments. *J. Pers. Soc. Psychol.* 35, 4 (1977), 250–256. DOI:<https://doi.org/http://dx.doi.org.ezproxy.snhu.edu/10.1037/0022-3514.35.4.250>
- [172] Nadav Nur and Oren Hasson. 1984. Phenotypic plasticity and the handicap principle. *J. Theor. Biol.* 110, 2 (1984), 275–297.
- [173] Shiri Nussbaum, Yaacov Trope, and Nira Liberman. 2003. Creeping dispositionism: The temporal dynamics of behavior prediction. *J. Pers. Soc. Psychol.* 84, 3 (2003), 485–497. DOI:<https://doi.org/10.1037/0022-3514.84.3.485>
- [174] David H Olson and Robert G Ryder. 1970. Inventory of marital vonflicts (IMC): An experimental interaction procedure. 32, 3 (1970), 443–448.
- [175] Andrea Orr. 2004. Meeting, mating and cheating. In *Sex, Love and the New World of Online Dating*. Upper Saddle River, NJ: Reuters Prentice Hall.
- [176] Elizabeth L Paul, Brian McManus, and Allison Hayes. 2000. “Hookups”: Characteristics and correlates of college students’ spontaneous and anonymous sexual experiences. *J. Sex Res.* 37, 1 (2000), 76–88.
- [177] Darhl M Pedersen. 1965. The measurement of individual differences in perceived personality-trait relationships and their relation to certain determinants. *J. Soc. Psychol.* 65, 2 (1965), 233–258.

- [178] Luiz Pizzato, Tomek Rej, Thomas Chung, Irena Koprinska, and Judy Kay. 2010. Reciprocal recommender for online dating. *Proc. fourth ACM Conf. Recomm. Syst. TBA* (2010), 207–214. DOI:<https://doi.org/10.1145/1864708.1864747>
- [179] Artemio Ramirez, Erin M. (Bryant) Sumner, Christina Fleuriet, and Megan Cole. 2015. When online dating partners meet offline: The effect of modality switching on relational communication between online daters. *J. Comput. Commun.* 20, 1 (2015), 99–114. DOI:<https://doi.org/10.1111/jcc4.12101>
- [180] Ulrich H Reichard. 2003. Monogamy: past and present. *Monogamy Mating Strateg. partnerships birds, humans other Mamm.* (2003), 3–25.
- [181] Harry T Reis, Michael R Maniaci, Peter a Caprariello, Paul W Eastwick, and Eli J Finkel. 2011. Familiarity does indeed promote attraction in live interaction. *J. Pers. Soc. Psychol.* 101, 3 (2011), 557–70. DOI:<https://doi.org/10.1037/a0022885>
- [182] Harry T Reis, Michael R Maniaci, Peter a Caprariello, Paul W Eastwick, and Eli J Finkel. 2011. In live interaction, does familiarity promote attraction or contempt? Reply to Norton, Frost, and Ariely (2011). *J. Pers. Soc. Psychol.* 101, 3 (2011), 575–8. DOI:<https://doi.org/10.1037/a0023471>
- [183] Harry T Reis and Ladd Wheeler. 1991. Studying social interaction with the Rochester Interaction Record. In *Advances in experimental social psychology*. Elsevier, 269–318.
- [184] Paul Resnick and Hal R Varian. 1997. Recommender systems. *Commun. ACM* 40, 3 (1997), 56–58.
- [185] SoYon Rim, James S. Uleman, and Yaacov Trope. 2009. Spontaneous trait inference and construal level theory: Psychological distance increases nonconscious trait thinking. *J. Exp. Soc. Psychol.* 45, 5 (2009), 1088–1097. DOI:<https://doi.org/10.1016/j.jesp.2009.06.015>
- [186] Richard W Robins, Avshalom Caspi, and Terrie E Moffitt. 2000. Two personalities, one relationship: both partners’ personality traits shape the quality of their relationship. *J. Pers. Soc. Psychol.* 79, 2 (2000), 251.
- [187] Michael J Rosenfeld and Reuben J Thomas. 2012. Searching for a mate the rise of the internet as a social intermediary. *Am. Sociol. Rev.* 77, 4 (2012), 523–547.

- [188] David R Roskos-Ewoldsen, Michael E Roloff, and Charles R Berger. 2010. *The Handbook of Communication Science*. Sage.
- [189] Alvin E. Roth, Tayfun Sonmez, and M. Utku Unver. 2004. *Kidney Exchange*. DOI:<https://doi.org/10.3386/w10698>
- [190] Alvin E. Roth and Marilda Sotomayor. 1992. Two-sided matching. In *Handbook of Game Theory with Economic Applications*. 485–541. DOI:[https://doi.org/10.1016/S1574-0005\(05\)80019-0](https://doi.org/10.1016/S1574-0005(05)80019-0)
- [191] Paul Rozin and Edward B. Royzman. 2001. Negativity bias, negativity dominance, and contagion. *Personal. Soc. Psychol. Rev.* 5, 4 (2001), 296–320. DOI:<https://doi.org/10.1207/S15327957PSPR0504>
- [192] Christian Rudder. 2014. *Dataclysm: Who We Are (When We Think No One's Looking)*. Random House Canada.
- [193] Robin J H Russell and Pamela A Wells. 1991. Personality similarity and quality of marriage. *Pers. Individ. Dif.* 12, 5 (1991), 407–412.
- [194] Constantine Sedikides and Aiden P Gregg. 2008. Self-enhancement: Food for thought. *Perspect. Psychol. Sci.* 3, 2 (2008), 102–116.
- [195] Rivka Shtatfeld and Azy Barak. 2009. Factors related to initiating interpersonal contacts on internet dating sites: A view from the social exchange theory. *Interpersona An Int. J. Pers. Relationships* 3, supp2 (2009), 19–37. DOI:<https://doi.org/10.5964/ijpr.v3isupp2.74>
- [196] Jacqueline Simenauer and David Carroll. 1982. *Singles: The New Americans*. Simon & Schuster.
- [197] Jeffrey A Simpson and Steven W Gongestad. 1992. Sociosexuality and romantic partner choice. *J. Pers.* 60, 1 (1992), 31–51. DOI:<https://doi.org/10.1111/j.1467-6494.1992.tb00264.x>
- [198] Steve Slane and Gary Leak. 1978. Effects of self-perceived nonverbal immediacy behaviors on interpersonal attraction. *J. Psychol.* 98, 2 (1978), 241–248.

- [199] Aaron Smith and Monica Anderson. 2015. 5 facts about online dating | Pew Research Center. Retrieved from <http://www.pewresearch.org/fact-tank/2016/02/29/5-facts-about-online-dating/>
- [200] Aaron Smith and Maeve Duggan. 2013. Online Dating & Relationships. Retrieved from <http://www.pewinternet.org/2013/10/21/online-dating-relationships/>
- [201] Barry Smith. 1988. *Foundations of Gestalt Theory*. New York, NY: Philosophia.
- [202] John Maynard Smith and David Harper. 2003. *Animal Signals*. Oxford University Press.
- [203] Bonnie K Stone, Bruno Scibilia, Cheryl Pammer, Cody Steele, and Dawn Keller. 2015. Choosing Between a Nonparametric Test and a Parametric Test. *The Minitab Blog*.
- [204] Anselm Strauss and Juliet M Corbin. 1990. *Basics of Qualitative Research: Grounded Theory Procedures and Techniques*. Sage Publications, Inc.
- [205] Richard B Stuart. 1969. Operant-interpersonal treatment for marital discord. *J. Consult. Clin. Psychol.* 33, 6 (1969), 675.
- [206] Michael Sunnafrank. 1986. Predicted outcome value during initial interactions A reformulation of uncertainty reduction theory. *Hum. Commun. Res.* 13, 1 (1986), 3–33.
- [207] William B Swann, Richard M Wenzlaff, and Romin W Tafarodi. 1992. Depression and the search for negative evaluations: More evidence of the role of self-verification strivings. (1992).
- [208] Loren Terveen and David W McDonald. 2005. Social matching: A framework and research agenda. *ACM Trans. Comput. Interact.* 12, 3 (2005), 401–434.
- [209] John W Thibaut and Harold H Kelley. 1959. *The Social Psychology of Groups*. Hoboken, NJ: John Wiley.
- [210] Lisa Collins Tidwell and Joseph B Walther. 2002. Computer-mediated communication effects on self-disclosure, impressions, and interpersonal evaluations. *Hum. Commun. Res.* 28, 3 (2002), 317–348.

- [211] Marie-Cecile O Tidwell, Harry T Reis, and Phillip R Shaver. 1996. Attachment, attractiveness, and social interaction: a diary study. *J. Pers. Soc. Psychol.* 71, 4 (1996), 729.
- [212] Peter M Todd, Lars Penke, Barbara Fasolo, and Alison P Lenton. 2007. Different cognitive processes underlie human mate choices and mate preferences. *Proc. Natl. Acad. Sci. U. S. A.* 104, 38 (2007), 15011–15016. DOI:<https://doi.org/10.1073/pnas.0705290104>
- [213] Catalina L. Toma and Jeffrey T. Hancock. 2010. Looks and lies: The role of physical attractiveness in online dating self-presentation and deception. *Communic. Res.* 37, 3 (2010), 335–351. DOI:<https://doi.org/10.1177/0093650209356437>
- [214] Catalina L Toma, Jeffrey T Hancock, and Nicole B Ellison. 2008. Separating fact from fiction: An examination of deceptive self-presentation in online dating profiles. *Personal. Soc. Psychol. Bull.* 34, 8 (2008), 1023–1036. DOI:<https://doi.org/10.1177/0146167208318067>
- [215] Robert L. L Trivers. 1972. Parental investment and sexual selection. *Sexual selection and the descent of man* 12, 136–179. DOI:<https://doi.org/10.1002/ajpa.1330400226>
- [216] Yaacov Trope and Nira Liberman. 2010. Construal-level theory of psychological distance. *Psychol. Rev.* 117, 2 (2010), 440.
- [217] Patti M. Valkenburg and Jochen Peter. 2007. Who visits online dating sites? Exploring some characteristics of online daters. *CyberPsychology Behav.* 10, 6 (2007), 849–852. DOI:<https://doi.org/10.1089/cpb.2007.9941>
- [218] T Joel Wade and Cristina DiMaria. 2003. Weight halo effects: Individual differences in perceived life success as a function of women’s race and weight. *Sex Roles* 48, 9–10 (2003), 461–465.
- [219] Elaine Walster, Vera Aronson, Darcy Abrahams, and Leon Rottman. 1966. Importance of physical attractiveness in dating behavior. *J. Pers. Soc. Psychol.* 4, 5 (1966), 508.
- [220] Joseph B Walther. 1992. Interpersonal effects in computer-mediated interaction a relational perspective. *Communic. Res.* 19, 1 (1992), 52–90.

- [221] Joseph B Walther. 1996. Computer-mediated communication impersonal, interpersonal, and hyperpersonal interaction. *Communic. Res.* 23, 1 (1996), 3–43.
- [222] Joseph B Walther. 1997. Interpersonal effects. *Hum. Commun. Res.* 23, 3 (1997), 342–369. DOI:<https://doi.org/10.1111/j.1468-2958.1997.tb00400.x>
- [223] Joseph B Walther, Tracy Loh, and Laura Granka. 2005. Let me count the ways the interchange of verbal and nonverbal cues in computer-mediated and face-to-face affinity. *J. Lang. Soc. Psychol.* 24, 1 (2005), 36–65.
- [224] David Watson, Eva C. Klohnen, Alex Casillas, Ericka Nus Simms, Jeffrey Haig, and Diane S. Berry. 2004. Match makers and deal breakers: Analyses of assortative mating in newlywed couples. *J. Pers.* 72, 5 (2004), 1029–1068. DOI:<https://doi.org/10.1111/j.0022-3506.2004.00289.x>
- [225] Gregory L White, Sanford Fishbein, and Jeffrey Rutsein. 1981. Passionate love and the misattribution of arousal. *J. Pers. Soc. Psychol.* 41, 1 (1981), 56.
- [226] Elise Whitley and Jonathan Ball. 2002. Statistics review 6: Nonparametric methods. *Crit. Care* 6, 6 (2002), 509.
- [227] Monica T. Whitty. 2008. Revealing the “real” me, searching for the “actual” you: Presentations of self on an internet dating site. *Comput. Human Behav.* 24, 4 (2008), 1707–1723. DOI:<https://doi.org/10.1016/j.chb.2007.07.002>
- [228] Monica T Whitty and Adrian N Carr. 2006. *Cyberspace Romance: The Psychology of Online Relationships*. Palgrave Macmillan.
- [229] Thomas A Wills, Robert L Weiss, and Gerald R Patterson. 1974. A behavioral analysis of the determinants of marital satisfaction. *J. Consult. Clin. Psychol.* 42, 6 (1974), 802–811. DOI:<https://doi.org/10.1037/h0037524>
- [230] Robert F Winch. 1958. *Mate-selection; a Study of Complementary Needs*. Harper.
- [231] Evan Wolfson. 1996. The freedom to marry: Our struggle for the map of the country. *QLR* 16, (1996), 209.
- [232] Stanley B Woll and P Chris Cozby. 1987. Videodating and other alternatives to traditional methods of relationship initiation. *Adv. Pers. relationships* 1, (1987), 69–108.

- [233] Pai-Lu Wu and Wen-Bin Chiou. 2009. More options lead to more searching and worse choices in finding partners for romantic relationships online: An experimental study. *CyberPsychology Behav.* 12, 3 (2009), 315–318.
- [234] Mu-Li Yang and Wen-Bin Chiou. 2010. Looking online for the best romantic partner reduces decision quality: The moderating role of choice-making strategies. *Cyberpsychology, Behav. Soc. Netw.* 13, 2 (2010), 207–210.
- [235] Amotz Zahavi. 1975. Mate selection-A selection for a handicap. *J. Theor. Biol.* 53, 1 (1975), 205–214. DOI:[https://doi.org/10.1016/0022-5193\(75\)90111-3](https://doi.org/10.1016/0022-5193(75)90111-3)
- [236] Amotz Zahavi and Avishag Zahavi. 1997. *The handicap principle: A missing part of Darwin's puzzle*. Oxford University Press, Oxford.
- [237] John Zimmerman, Jodi Forlizzi, and Shelley Evenson. 2007. Research through design as a method for interaction design research in HCI. *Proc. SIGCHI Conf. Hum. factors Comput. Syst.* (2007), 493–502. DOI:<https://doi.org/http://doi.acm.org/10.1145/1240624.1240704>
- [238] Doug Zytko, Guo Freeman, Sukeshini A Grandhi, Susan C Herring, and Quentin Gad Jones. 2015. Enhancing evaluation of potential dates online through paired collaborative activities. In *Proceedings of the 18th ACM Conference on Computer Supported Cooperative Work & Social Computing*, 1849–1859.
- [239] Doug Zytko, Sukeshini A Grandhi, and Quentin Jones. 2018. The (un)enjoyable user experience of online dating systems. In *Funology 2: From Usability to Enjoyment*, Mark Blythe and Andrew Monk (eds.). New York, NY: Springer.
- [240] Douglas Zytko, Sukeshini A Grandhi, and Quentin Jones. 2014. Impression management struggles in online dating. In *Proceedings of the 18th International Conference on Supporting Group Work*, 53–62.
- [241] Douglas Zytko, Sukeshini A Grandhi, and Quentin Jones. 2014. Impression management and formation in online dating systems. In *European Conference on Information Systems (ECIS) 2014*, 1–10. Retrieved from <http://aisel.aisnet.org/ecis2014/proceedings/track12/9/>
- [242] Douglas Zytko, Sukeshini A Grandhi, and Quentin Jones. 2015. Frustrations with Pursuing Casual Encounters through Online Dating. In *Proceedings of the 33rd Annual ACM Conference Extended Abstracts on Human Factors in Computing Systems*, 1935–1940.

- [243] Douglas Zytco, Sukeshini A Grandhi, and Quentin Jones. 2016. Online dating coaches' user evaluation strategies. In *Proceedings of the 2016 CHI Conference Extended Abstracts on Human Factors in Computing Systems*, 1337–1343.
- [244] Douglas Zytco, Sukeshini A Grandhi, and Quentin Jones. 2016. The coaches said...what?: Analysis of online dating strategies recommended by dating coaches. In *Proceedings of the 19th International Conference on Supporting Group Work*, in press.
- [245] Douglas Zytco, Sukeshini A Grandhi, and Quentin Gad Jones. 2014. Impression management through communication in online dating. In *Proceedings of the Companion Publication of the 17th ACM Conference on Computer Supported Cooperative Work & Social Computing*, 277–280.