AN EMPIRICAL EXAMINATION OF 'LOVE AT FIRST SIGHT': THE EFFECT OF SIMILARITY IN ATTRACTIVENESS ON AUTOMATIC MATE SELECTION BEHAVIORS

Laura E. Kurtz

A dissertation submitted to the faculty at the University of North Carolina at Chapel Hill in partial fulfillment of the requirements for the degree of Doctorate of Philosophy in the program of Psychology and Neuroscience.

Chapel Hill
2016

Approved by:

Sara B. Algoe

Barbara Fredrickson

Paschal Sheeran

Keith Payne

Shimul Melwani

Laura Castro-Schilo

ABSTRACT

Laura E. Kurtz: An Empirical Examination of 'Love at First Sight': The Effect of Similarity in Attractiveness on Automatic Mate Selection Behaviors
(Under the direction of Sara B. Algoe)

High quality relationships are robustly linked with greater health and wellbeing across a number of dimensions. Increasingly, people are turning to online dating websites and applications as a way to initiate such relationships. However, many of the matching procedures used in online dating platforms are both cumbersome to the user and prone to various reporting biases.

The current work examines if one's automatic behavior might serve as a signal of underlying mate selection processes and a subsequent predictor of initial attraction. Across three samples, participants' reaction times when evaluating the photographs of potential mates were predicted by the degree of similarity in attractiveness between the participant and the target, with greater similarity leading to slower reaction times. The final study utilized a speed dating event to test whether participants' reaction times might subsequently predict whether they hit it off with a target upon first meeting. Results demonstrated partial support for the hypothesis, with longer reaction times predicting greater interaction quality, liking, closeness, and affiliative desires for women but not for men. Implications for the past and future of online dating and relationships research are discussed.

To Frankie, my favorite.

ACKNOWLEDGEMENTS

This work would not have been possible without the help of so many people. To them, I offer my deepest gratitude.

To my family for their constant support and encouragement.

To Blair for his unwavering patience and care.

To Sara for her thoughtful mentorship and endless enthusiasm.

To my fellow first years for life, Elise and Jenna, for cupcake Fridays, craft nights, and everything in between.

To my grad school friend, Keenan, for humoring me when I wanted to watch awful Buzzfeed videos in the office.

To my committee as well as everyone in the EASIR and PEP Labs for their time and thoughtful feedback on this and previous work.

To my research assistants for helping to lighten the load over the years.

And to the Dashiell Dissertation Start-Up Fund for supporting the financial costs of the current studies.

TABLE OF CONTENTS

LIST OF TABLES

Table

LIST OF FIGURES

CHAPTER 1: INTRODUCTION

A multitude of data suggests that maintaining high quality relationships is beneficial for one's health and wellbeing (see Cohen, 2004 for review). Such relationships not only fulfill belongingness needs (Baumeister & Leary, 1995) and provide one with emotional and psychological support in both good times and bad (Gable, Gosnell, Maisel, & Strachman, 2012; Reis & Shaver, 1988), but have also been associated with better cardiovascular health (Gallo, Troxel, Matthews, & Kuller, 2003), resilience and recovery (Fuller-Iglesias, Sellars, & Antonucci, 2008; Glass & Maddox, 1992), and even overall longevity (Holt-Lunstad, Smith, & Layton, 2010). Increasingly, individuals are turning to online dating websites and applications as a way to seek out and initiate such relationships, with 22% of individuals aged 25-34 years reporting having tried online dating in a 2013 survey (Smith & Duggan, 2013). And while these tools have proven promising for sparking some committed relationships and marriages (Smith & Duggan, 2013), they are far from foolproof. Indeed, there is no guarantee upon signing up for a dating service that every user will find "the one." This point is underscored by the fact that one-third of users report having never even gone on a date with anyone they met online (Smith & Duggan, 2013). Combined, these data draw attention to the importance of exploring new avenues for effectively predicting initial attraction and relationship formation, especially as they might inform improvements in the context of online dating.

Predicting Initial Attraction and Relationship Formation

A careful examination of the features found in some of the more popular online dating sites reveals that, by and large, many of the classic predictors of initial attraction and relationship

formation that are found in relationships research can also be found online. For instance, many sites enable users to filter out matches on the basis of certain attributes like gender, race, religion, or location. Just as is the case offline (e.g., Byrne, Clore, & Worchel, 1966; Alford, Hatemi, Hibbing, Martin, & Eaves, 2011; Klohnen, & Luo, 2003), research examining who users typically search for and subsequently reach out to demonstrates that individuals are drawn to those who are more similar to themselves on a number of characteristics (Hitsch, Hortacsu, & Ariely, 2005).

Building on these data, many sites go to great lengths to match users with one another, often touting complex compatibility algorithms as evidence of their superiority over other sites. OkCupid's algorithm, for example, is based on a user's responses to various questions—both about him/herself as well as what he/she is looking for in a partner ("We use math," n.d.). The site then evaluates one's responses relative to other users' to calculate three specific match percentages, which are displayed when viewing another's profile. For instance, Sally, an OkCupid user, may be told that she and Harry are an 85% romantic match, a 50% friend match, and a 12% enemy match when viewing his profile. It is then up to Sally to decide what to make of those numbers. Is 85% high? Should she be worried about that 12% enemy match? Not only might this numerical indicator provide Sally an assessment of how similar she and Harry are, but it also has the potential to serve as a filter through which her subsequent evaluations of and behaviors toward Harry are shaped. A high romantic match percentage, for instance, might inflate Sally's sense of similarity and liking for Harry, perhaps making her more likely to reach out and ask him on a date. On the other hand, a low match percentage might dampen perceptions of similarity and liking to the point that Sally would be less inclined to message or meet up with Harry altogether, thereby stunting any possibility for a relationship.

While the data scientists at OkCupid would likely argue that this is the precise point of the algorithm—to help users make more informed decisions about who might be worth pursuing or not—the algorithms themselves are not without fault. Not only do they typically require a tremendous amount of effort on the part of the user, but they also rely heavily on self-reported data, which are prone to a number of notable reporting biases.

The Common Concern: Self-Reported Data

There is a long history of methodological concern and debate over the utility and accuracy of self-reported data that extends well before online dating sites were invented (see Del Boca & Noll, 2000; Donaldson & Grant-Vallone; and Gonyea, 2005 for reviews across a number of research domains). At the center of these concerns lie issues with participants' inability to report accurately—as in the case of recalling events long passed or reporting on information that lies beyond one's actual awareness (Gorin & Stone, 2001; Nisbett & Wilson, 1977)—or their motivated desire to supply inaccurate responses—as in the case of altering reports according to expectations about social approval or self-presentation motives (Paulhus, 1984).

Within the context of initiating relationships, those broader concerns of the general inaccessibility of certain information have been echoed by research showing that individuals are notoriously bad at accurately reporting which characteristics would best contribute to their liking of a potential mate (Eastwick & Finkel, 2008). However, perhaps more compelling for the case of online dating is the second of these broader methodological concerns. That is, in a context where self-presentation motives may be especially heightened (Rowatt, Cunningham, & Druen, 1999) and where users are given more opportunities to craft a portrait of themselves that satisfies these motives (Gibbs, Ellison, & Heino, 2006), biased reporting due to motivations of self-presentation may hold considerable weight.

Indeed, when there is little reason to suspect that a participant would be unable to access or provide accurate information, any observed inaccuracies may signal underlying motivations. A qualitative examination of 34 online daters revealed that many reported intentionally presenting a version of their ideal, rather than actual, self or noticing others doing the same (e.g., overestimating engagement in physical activity, under-reporting weight); when probed for *why* this was the case, participants in large part explained it as being a natural tendency, rather than an overt attempt at deception (Ellison, Heino, & Gibbs, 2006). Additional research since has echoed these results. In conjunction with participants' reports of accuracy, more recent studies have confirmed the accuracy of online profiles using objective measures in the lab. When comparing actual height and weight to those reported online, Toma and colleagues found that almost two-thirds of participants reported inaccurate weight by five pounds or more, and nearly half lied about their height (Toma, Hancock, & Ellison, 2008). There were also some notable gender differences, with men tending to overestimate their height more than women, and women tending to underestimate their weight more than men (Toma et al., 2008). When asked to report how accurate their profiles were, participants' estimations of accuracy were correlated with the observed discrepancies between reported and measured height, weight, and age, suggesting that participants were indeed aware of the inaccuracies in their profiles and were not simply reporting in line with some form of self-deception (Toma et al., 2008).

Of course there may be other factors influencing one's decision to present false information online that go beyond one's inability to report accurately for lack of self-knowledge or impairments in memory or one's motivation to report in line with what one deems socially acceptable. Indeed, many online daters justify inaccurate information as a way to get around limitations set by features of the dating site itself (e.g., inaccurately reporting one's age in order

to be included in more search results, misrepresentation of appearance or mate preferences due to limited multiple choice options; Ellison, Heino, & Gibbs, 2006), rather than as a direct way to deceive other users, per se. Regardless of the motivations or underlying mechanisms driving the observed inaccurate reporting on many online dating profiles, one component remains consistent—the fact that the inaccuracies were ultimately derived from self-reported means.

The aforementioned reporting concerns, coupled with the notable effort required of users and the general lack of data in support of algorithm efficacy (Finkel, Eastwick, Karney, Reis, & Sprecher, 2012), call into question the utility of such elaborate matching procedures. Might dating sites simply be over-engineering the solution? Rather than relying on individuals to channel their innermost desires or indicate their attitudes toward obscure film genres, the current work proposes a return to basics. After all, humans have been selecting mates and initiating relationships long before the Internet was invented. The current research therefore tests the notion that one might be able to predict initial attraction and pair matching by giving individuals only minimal information about a potential mate and asking them to indicate their gut response. This notion is grounded in theory and method across various areas of psychology that point to the utility of implicit measures in detecting automatic attitudes or processes and predicting subsequent behavior.

The Value of Automatic Behavior

In response to the prior noted concerns presented by self-reported data, psychologists have been invested in developing alternative methods of data collection for decades. One prominent line of research that arose out of this exploration involves the creation and implementation of varied behaviorally-based measures. One defining feature of such behavioral measures is that they often collect information that bypasses the effortful, controlled processes

typical of self-reported data. To do so, many utilize measures of reaction time or physiology to assess basic underlying associations or attitudes. Measures like the Implicit Association Test (IAT, Greenwald, McGhee, & Schwartz, 1998), the Go/No-Go Association Task (GNAT, Nosek & Banaji, 2001), and the Affect Misattribution Procedure (AMP, Payne, Cheng, Govorun, & Stewart, 2005), for instance, allow researchers a way to circumvent issues with social desirability bias by testing for basic associations implicitly (e.g., pairing positively or negatively-valenced words or evaluations with a certain race or religion), rather than explicitly (e.g., asking someone if they hold any prejudice against members of a certain race or religion). Such implicit measures may be especially effective in contexts where individuals are highly motivated to hide socially unacceptable motivations or attitudes or to alter responses as a way to satisfy certain social presentation or acceptance desires (Fazio & Olson, 2003). As such, these behavioral measures have been utilized most extensively in research on prejudice and attitudes (see Fazio & Olson, 2003 for review), with notable applications for predicting vote casting (Lundberg & Payne, 2014) and engagement in addictive behaviors like drinking (Payne, Govorun, & Arbuckle, 2008) and smoking (Payne, McClernon, & Dobbins, 2007). Importantly, evidence for the usefulness of behaviorally-based measures comes from their ability to predict behaviors and evaluations often above and beyond self-reported means (e.g., Dovidio, Kawakami, Johnson, Johnson, & Howard, 1997; Friese, Hofmann, & Wanke, 2008; Lundberg & Payne, 2014).

Although certainly not as common, behavioral measures are not entirely new to relationships research. Approach-avoidance tasks, which traditionally ask participants to pull a lever toward them in response to positive stimuli and push the lever away from them when faced with negative stimuli, have been modified to test one's relational ambivalence toward a significant other (Mikulincer, Shaver, Bar-On, & Ein-Dor, 2010). These measures, as well as

similarly modified IATs (Zayas & Shoda, 2005), have been associated with different attachment styles (Mikulincer et al., 2010). In other research, McNulty and colleagues have examined the use of affective priming procedures in predicting certain relational outcomes, and have shown that one's implicit self-evaluation is positively associated with one's implicit partner evaluation three years later (McNulty, Baker, & Olson, 2014). Still other research has shown that attentional adhesion to attractive others in an implicit visual cueing task is associated with one's involvement in a committed relationship (Maner, Gailliot, & Miller, 2009).

The current work extends this methodological framework to the context of first impressions to test whether one's automatic behavior when evaluating a potential mate, given minimal information, might predict important relational outcomes. Critically, the minimal information identified as being most relevant in the current work is the target's physical attractiveness. Not only does this most closely model the mate selection process typically observed offline (e.g., approaching a stranger at a bar, armed with little knowledge beyond what the stranger looks like), but similar information can be found on all of the popular dating sites and applications.

Physical Attractiveness; Online and Off

Although they might vary in the degree of importance or emphasis they place on attractiveness, nearly all dating sites and applications include some indicator of physical attractiveness (e.g., a profile picture). Tinder, a popular dating application in younger adult samples, is often criticized for relying heavily on physical attraction by only allowing its users to message one another if each person independently indicated interest in the other—that is, if they each "swiped right" on their mobile touch screen devices when presented with little more than the other's profile photo. Although Tinder's founders have pushed back on this reputation (Carr,

2016), there are other dating sites that welcome and even boast placing a heavy emphasis on their user's physical attractiveness. Beautifulpeople.com is an obvious example, restricting access to only those individuals that the existing site users vote in as being attractive enough to join ("About Beautifulpeople.com," n.d.). Even sites that are heavy on self-reported, similarity-based matching algorithms, like EHarmony or Match.com, encourage and on some occasions even require users to upload a photo of themselves ("How it works," n.d.; "Who we are," n.d.). Interestingly, there was one notable exception to this observation. A dating application named Twine received a fair amount of press for its stance that physical attractiveness should be removed from the initial matching equation—a stance brought to life by blurring each user's profile picture until he/she indicated that they would like it revealed to another user (Kern, 2013). Unfortunately, the application was short lived; Twine shut down just fourteen months after launching.

Beautiful is Better. Although it may not sound overly romantic, there is good reason for why Twine failed; physical attractiveness is a clear and key predictor of attraction. In general, research has shown that participants tend to pay more attention to (Aharon et al., 2001) and are more likely to agree with (Horai, Naccari, & Fatoullah, 1974) attractive others more so than unattractive others. They also tend to express greater desire to date those who are more physically attractive (Walster et al., 1966) and often assume that attractive individuals possess many other positive qualities as well (i.e., the amply-researched attractiveness halo effect; see Eagly, Ashmore, Makhijani, & Longo, 1991 for review)—an assumption that recent evidence suggests might be driven by amplified motivations to affiliate with attractive people (Lemay, Clark, & Greenberg, 2010). Even parent-child relationships can be influenced by how physically attractive either individual is; infants attend to and demonstrate preferences for more physically

attractive faces (Langlois et al., 1987), while mothers have been shown to provide greater care and attention to children who are more physically attractive (Langlois, Ritter, Casey, & Sawin, 1995).

While research on physical attractiveness broadly points to its power in influencing attitudes of and motives or behaviors toward another, greater nuance can be gained from approaching the construct from a dyadic perspective. After all, relationships are two sided; not only do one's evaluations of one's partner matter in predicting relational outcomes, but one's partner's evaluations of the self matter as well. Put another way, if the attractiveness of a stranger is what catches another's eye, the similarity in attractiveness between the two is what will predict if the stranger returns the glance.

Similar is Best. The matching hypothesis, a notion first set forth by sociologist Erving Goffman (1952) and popularized by Hatfield and colleagues (Walster, Aronson, Abrahams, & Rottman, 1966), proposed that individuals have a tendency to be attracted to and have higher quality relationships with those who are of similar desirability. Out of this hypothesis came a series of early studies aimed at testing whether any such matching effect could be observed on the grounds of similarity in physical attractiveness. Results of this work were mixed; while some research found associations between similarity in physical attractiveness and positive relational outcomes (e.g., greater desire to go on a first date, Berscheid, Dion, Walster, & Walster, 1971), others failed to find support for the matching hypothesis—typically showing only main effects of target attractiveness on liking, regardless of one's own attractiveness level (Walster et al., 1966; Walster, 1970). This tension in findings was proposed in early work to be the difference between participants' tendencies to make ideal choices (i.e., seek partners who possess ideal characteristics such as high attractiveness) versus realistic choices (i.e., seek partners with whom

one is more likely to have success in attracting), although formal tests of this distinction were unsupported (Berscheid et al., 1971).

A few additional studies were conducted to test if the matching hypothesis might be observed in ongoing relationships, as evidenced by similarity in attractiveness ratings given by outside coders to each member of a couple. Data from these studies revealed support of the matching hypothesis, documenting consistent interpartner correlations in attractiveness (Murstein & Christy, 1976; Price & Vandenberg, 1979; Stevens, Owens, & Schaefer, 1990). These results were supported in a meta-analysis examining the matching effect in romantic couples and same-sex friend pairs, which again found high interpartner correlations for attractiveness between romantic partners and male friend pairs, though not female friend pairs (Feingold, 1988).

Since this work nearly three decades ago, few studies have directly examined the matching hypothesis. The notable exception to this was a series of recent studies conducted by Taylor and colleagues, one of which focused explicitly on how similarity in attractiveness between two users of an online dating site might relate to their behavior toward one another (Taylor, Fiore, Mendelsohn, & Cheshire, 2011; Study 2). Analyses revealed that individuals who messaged others of similar attractiveness had significantly greater success in receiving a response (Taylor et al., 2011). These findings served to both lend support to the matching hypothesis as well as to call attention to the relative dearth of recent empirical evidence on the subject.

Although research interest may have strayed from the matching hypothesis specifically, a parallel line of research has been conducted on the influence of *mate value* on initial attraction and relational quality. Broadly defined, one's mate value represents the conceptual total of

desirable and undesirable traits that one possesses that may foster or hinder successfully attracting a mate (Fisher, Cox, Bennett, & Gavric, 2008). Traditionally, and supported in more formal examinations of mate value indicators, one's physical attractiveness represents a common component of one's mate value (Fisher et al., 2008; Eastwick & Hunt, 2014). The crux of this work as it relates to the current research and ties back to the matching hypothesis lies in the notion that one's evaluations of and behaviors toward potential mates are influenced by one's own mate value—namely, that individuals seek others of equivalent mate value (Buss & Shackelford, 2008); those who have higher mate values, as indexed in part by higher physical attractiveness, are more inclined to seek out others with high mate values (i.e., those who are of comparable attractiveness).

Embedded within broader theories of relationship initiation and stability, it would follow that those who are better matched may be predisposed to initiate and maintain longer lasting relationships than those who exhibit notable mismatch. Upon first meeting, similarity in attractiveness may operate to encourage reciprocal liking, which has been shown to be a key predictor of subsequent attraction and even falling in love (Aron, Dutton, Aron, & Iverson, 1989). Then, once together, partners possessing greater similarity in attractiveness may benefit from increased commitment, due to both partners perceiving lower quality alternatives. To clarify, Rusbult's Investment Model of Commitment proposes that a key component driving commitment to one's partner is the quality of which one perceives their alternatives to be (Rusbult, 1980). Individuals who perceive higher quality alternatives to their current relationship (e.g., feeling as though they might have a better relationship with someone else) may feel less committed to their partner, which could in turn predict greater likelihood of relationship dissolution down the road (Rusbult, 1980). Thus, discrepancy between partners in physical

attractiveness may lead the more attractive of the two to perceive greater room for improvement, which could in turn enhance evaluations of alternatives and decrease commitment.

In turn, from an evolutionary perspective, it would be advantageous for one to be accurate in assessing one's own mate value (e.g., one's attractiveness), so as to reserve effort and resources for those mates one is more likely to successfully attract and maintain, rather than wasting time and energy on those who are likely to be unattainable. And yet, research shows that individuals are not always accurate in estimating their own mate values. Indeed, self-perceived mate values do not always align with those rated by outside observers (Back, Penke, Schmukle, & Asendorpf, 2011). Considered alongside the broader literature on similarity, which has called out the important distinctions between observed and perceived similarity across a number of dimensions (e.g., attitudes, personality traits) in predicting relational outcomes (Montoya, Horton, & Kirchner, 2008), these data call attention to the importance of considering both perceived and actual similarity in mate value—operationalized here as perceived and actual similarity in attractiveness—as predictors of initial attraction and relationship formation.

In sum, there exists both direct and indirect support for the links between similarity in physical attractiveness and positive relational outcomes. However, in light of early discrepancies in findings as well as methods (e.g., examining the construct in existing couples versus strangers), further research is needed to improve clarity around the construct's relational import relative to that of physical attractiveness more broadly. Moreover, the point at which similarity in attractiveness may influence mate selection and attainment remains unclear. Additional research is needed to test whether this self-other evaluative process comes online with initial impression formation or if it is otherwise observed later on in the relational trajectory.

Current Studies: Spontaneous Behavior Reveals Similarity in Attractiveness

The current work aims to further isolate the importance of similarity in attractiveness in guiding one's evaluation of and relational success with a potential mate. Critically, the current research builds on existing work by considering the degree to which this evaluative process, if present, might play out in earliest stages of initial impression formation, as indexed by the speed at which a target evaluation is made on a timed behavioral task. Subsequently, the current work examines whether one's automatic responses, insofar as they serve as indicators of similarity in attractiveness, might predict key relational outcomes upon first meeting.

The reaction time task tested in the current studies is modeled off of a prominent matching feature of Tinder. As noted previously, Tinder is a dating application that bases its matching procedure largely on physical attraction. Unlike most dating services, and perhaps most akin to traditional forms of mate selection offline, Tinder does not require its users to complete a battery of self-report measures to determine matches. Instead, users are asked to provide a photograph from their Facebook profile, which, when viewed on a standard mobile phone, will make up the majority of what other users will see. Users are also given a chance to write a brief biography, however these are typically no longer than one or two sentences and are positioned underneath the user's photo. Users are then shown others in their geographical area who fit their age and gender preferences. If one wishes to open avenues of communication with another, he/she swipes that user's photo right on his/her mobile touchscreen device. If the feeling is mutual (i.e., if the other user also indicates liking him/her), the two are considered a match and are given the opportunity to chat with one another.

Tinder's matching procedure stops there, providing no additional information to its users about possible similarities in values, interests, or the like. The current studies extend this initial

matching paradigm to include reaction time as a possible index of similarity in physical attractiveness. Given the literature on physical attractiveness, mate value, and mate selection detailed above, the current studies test the notion that one's reaction time when evaluating a potential mate will be determined by the extent to which one must deliberate over how the target's mate value compares to one's own; since the only information participants will be given of the target is their appearance, participants' evaluations of the target's mate value will, by necessity, be an evaluation of their physical attractiveness. Specifically, I hypothesize that greater effort and deliberation must be made when considering whether to pursue targets who are closer to one's own mate value. Targets with higher perceived mate value (i.e., those who are notably more attractive) will encourage fast affirmative responses, whereas those with lower perceived mate value relative to the self (i.e., those who are notably less attractive) will encourage fast negative responses. In contrast, evaluating targets with perceived mate values similar to one's own (i.e., those who are of similar physical attractiveness) requires a more thoughtful consideration of the likelihood that one might have success attracting a higher valued mate than the target, and should therefore reserve one's efforts for others.

Once the measure has been tested and if reaction time has been shown to be associated with similarity in attractiveness as predicted, the current research will then examine whether those behaviors really matter—that is, whether one's reaction time when evaluating a target holds value in predicting key relational outcomes after the two have met.

Hypotheses. There are two primary hypotheses of the current research:

H1: Reaction time in evaluating photos of potential mates will serve as a signal of similarity in physical attractiveness between participants and target individuals.

Specifically, participants will respond more slowly to targets who are more similar in attractiveness, and faster to those who are less similar (Studies 1a-b and 2).

H2: Reaction time to a target's photo, as an index of similarity in attractiveness, will be associated with greater reports of liking, closeness, and desire to affiliate with the target individual (Study 2).

Additionally, as exploratory analyses and in line with prior attractiveness and mate value research, the current studies will test gender as a potential moderator of the proposed effects.

CHAPTER 2: STUDY 1A

The purpose of Study 1A was to test Hypothesis 1, that reaction time when evaluating interest in a potential mate is indicative of similarity in attractiveness between the rater and the target. The controlled methods of Study 1A allowed for an initial test of the basic predicted association in H1 as well as to test whether gender might moderate the proposed effect.

Method

Participants. To ensure sufficient power for hypothesis testing, and assuming a small to medium effect size of the proposed association (f^2=.1), a sample size of approximately one hundred twenty participants was desired. In total, two hundred fifty-seven participants were recruited to participate in the 15-minute study. Of those, one hundred sixty five went on to take the survey, one hundred nineteen of which completed the reaction time task. Finally, of those one hundred nineteen participants that completed the reaction time task, only ninety returned to the survey to complete the demographic questions. The majority (i.e., 64.4%) of those ninety participants identified as White, Female (64.4%), and not Hispanic (94.4%). Participants ranged from 18 to 30 years of age (M = 20.07, SD = 1.89).

Given prior research documenting differences between single and romantically involved participants when evaluating potential romantic partners (Johnson & Rusbult, 1989), only those who affirmed that they were not currently in a committed romantic relationship were eligible to participate. Despite providing verbal confirmation that they were single when initially approached to participate in the study, six participants indicated in the survey that they were in fact in a serious committed relationship. Those six participants were excluded from all analyses.

To compensate for their time, all participants were entered into a lottery for a chance to win one of two $50 Amazon gift cards, which were distributed electronically once all data had been collected.

Procedure. Trained research assistants approached individuals who appeared to be between 18 and 25 years old on the campus of a large public university in the southeastern United States and asked them if they would like to participate in a short, two-part study about online dating. Research assistants were instructed to approach every third person who passed to introduce some degree of random sampling to the procedure. Upon providing consent and affirming that they were currently single and at least 18 years old, participants were given a flyer containing a link to an online survey and activity which they were asked to complete within the following 24 hours, from the privacy of their own computer. Participants were then given a brief description of the survey and task before having their photos taken. Two photos were taken of each participant—one for which the participant was asked to smile, and one for which they were asked to make a neutral face. Participants then supplied the research assistant with their email address for the purposes of sending a reminder email and to enter them into the gift card drawing.

The survey and timed task took approximately 10 minutes to complete. If a participant had not taken the survey and completed the task within 24 hours of their initial contact with a research assistant, a reminder email was sent to the address they provided. Survey measures included a series of personality and individual difference measures (i.e., the modified version of the ten-item Big Five Inventory, BFI-10; Rammstedt & John, 2007 and the Rosenberg Self-Esteem Scale, RSE; Rosenberg, 1965), as well as a few questions about their dating preferences and history (e.g., current relationship status, sexual orientation, longest relationship) and overall

attitudes toward dating sites. Following this portion of the questionnaire, participants were asked to click a link that would take them to the timed task, which was hosted on Inquisit's online platform. Details of the task can be found below. Once participants had completed the task, they were asked to navigate back to the survey to answer a few final demographic questions.

Measures. The BFI-10 measures each of the big five personality domains (i.e., openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism) across ten items, with two items assessing each domain. Participants indicated the extent to which they agreed with each statement on five-point scales (e.g., "I see myself as someone who is reserved," 1: Disagree strongly, 5: Agree strongly). Item pairs were then averaged for each domain. However, as noted in the discussion of the original scale development paper (Rammstedt & John, 2007), the reliability and validity for the subscale of agreeableness is dramatically improved by adding one item (i.e., "I see myself as someone who is considerate and kind to almost anyone"). We thus included this item in addition to the original ten.

The RSE (Rosenberg, 1965) is also comprised of ten items to which participants were asked to rate their agreement (1: Strongly Agree, 2: Agree, 3: Disagree, 4: Strongly Disagree) and is a validated measure of trait self-esteem. Sample items include: "On the whole, I am satisfied with myself" and "I certainly feel useless at times" (reverse scored). Item responses are summed for a combined scale score, with lower scores corresponding to higher self-esteem.

Timed reaction task. For the timed reaction task, participants were presented with a series of 113 or 115[1] faces of individuals ranging in age from 18 to 25. The target photos were taken from the Chicago Face Database (Ma, Correll, & Wittenbrink, 2015). The gender of the

[1] Participants completing the reaction time task containing male photos were presented with 113 pictures; those completing the task with female photos were presented with 115 pictures. This difference was due to a slight discrepancy in the number of photos that were available for each gender within the chosen age range of the Chicago Face Database.

target photos was determined by participants' reported sexual orientation; participants who reported to be mostly attracted to men completed the task with male faces, participants who were mostly attracted to women were presented with the female faces, and those who reported equal attraction to men and women were randomly assigned to view either the male faces or the female faces. Of the male photos, 43 were of White faces, 35 were of Black faces, 19 were of Asian faces, and 16 were of Hispanic/Latino faces. Of the female photos, 36 were of White faces, 25 were of Black faces, 28 were of Asian faces, and 26 were of Hispanic/Latino faces. All faces were exhibiting emotionally neutral expressions.

For the task itself, participants were given the following instructions:

> "We are interested in how people form first impressions of one another. For this task, you will be presented with a photo of another person. Indicate your desire to date this person hitting either the F or J key. If you would want to date the person, hit the J key. If you would not want to date the person, hit the F key. Once you have provided your answer, another person's photo will appear. Repeat this process until you have responded to all photos.
>
> Importantly, we are looking for your gut response and would thus like you to answer as quickly as possible. To discourage lengthy deliberation, you will be timed, and any especially slow responses will be flagged. Furthermore, your responses will be kept entirely confidential; no one beyond the research team will ever see how you responded to any of the photos. Please be as honest and as fast as possible."

Key assignment was counterbalanced, such that half of the participants completed the task with F corresponding to "Yes" and J corresponding to "No" while the other half saw F corresponding to "No" and J corresponding to "Yes."

Following the initial instructions, participants then completed a set of practice trials, designed to get them comfortable with the task before starting the test trials. For the practice trials, participants were presented with a photo of a black and white silhouette and were asked to practice hitting each of the two possible keys. Once the practice trials were completed, participants began the test trials, for which their reaction time and response (i.e., yes or no) for each target photograph were recorded. See Figures 1 and 2 for sample images of practice and test trials.

Critically, although the hypotheses assumed that participants would be utilizing information on physical attractiveness to guide their responses to each photo, the responses themselves were intended to be framed as an indicator of affiliation. The decision to frame the task this way, rather than as a direct evaluation of targets' attractiveness, was driven by previous data linking reaction time to general target attractiveness. That is, when specifically asked to evaluate how attractive a target individual was, participants took longer to rate the more attractive photos (Imhoff et al., 2010). By emphasizing the importance of fast responses and by framing the task to be about affiliation rather than attractiveness directly, we anticipated being better able to detect the nuanced pattern of response times hypothesized, rather than just the basic positive linear relationship shown previously.

Photo ratings. A separate group of four judges within the same age range as the participants rated the photos of each participant who took the timed task[2] as well as each target photo from the timed task for degree of physical attractiveness (α = .74 and .71, respectively). Ratings were made on ten-point scales (1: Least Attractive, 10: Most Attractive) to parallel cultural convention and previous work employing similar coding procedures (McNulty, Neff, &

[2] Five participants' photos were not taken due to technical difficulties with the camera, and were thus not rated by the judges.

Karney, 2008). Judges' scores were averaged for each photo and a similarity score for each participant-target photo pair was calculated. Participants were also asked to rate their own attractiveness on the same ten-point scale. A separate set of similarity scores were then calculated from each participant's self-rated attractiveness and the attractiveness of the target photos, as rated by the judges. For ease of presentation, these difference scores will be referred to as actual and perceived similarity, respectively. An index of self-enhancement was also calculated by subtracting the judges' ratings of participant attractiveness from the participants' self-ratings, for descriptive purposes.

It is also possible that participants' responses to the target photos during the reaction time task could be influenced by perceptions other than physical attractiveness. To control for this possibility in analyses, the four judges also rated the perceived warmth and competence of each target photo on 7-point scales, using the following prompts: "How sociable, warm, friendly, and caring do you think this person is?" (1: Not at all, 7: Very much) and "How motivated, intelligent, energetic, and organized do you think this person is?" (1: Not at all, 7: Very much). Judges' responses were averaged for each target photo, although reliability scores were low (α = .48 for both warmth and competence)—a consideration I touch on again in the discussion.

Results

Means, standard deviations, and bivariate correlations for all variables of interest can be found in Table 1.

Data Considerations. It is common practice to restrict the range that latency values can take when examining performance on reaction timed tasks so as to eliminate potentially problematic data (i.e., responses that were either too quick or too slow to be realistic or true to the task instructions to decide quickly; Maison, Greenwald, & Bruin, 2001). As such, the models

presented here, as well as in Studies 1B and 2 were conducted with latency scores restricted to 250 - 2000ms. The 6.94% of responses falling beyond that range were treated as missing data.

Primary Analyses. Due to the repeated nature of the data, a series of multilevel models were conducted in which trial (Level 1) was nested within participant (Level 2). To test whether similarity in physical attractiveness predicted reaction time on the task (H1), three separate models were created—the first with trial latency regressed on perceived similarity scores, entered at level 1 as a fixed effect, the second with trial latency regressed on actual similarity scores, entered at level 1 as a fixed effect, and the third with trial latency regressed on both perceived and actual similarity scores, entered at level 1 as fixed effects. Each model included a random intercept to allow for variability across individuals.[3]

Results of the first and second models show that, when considered in isolation, both perceived similarity and actual similarity were significant predictors of latency in the hypothesized direction ($\hat{\gamma}_{PS}$ = -33.94, t_{11615}= -11.12, $p < .001$, $\hat{\gamma}_{Intercept}$ = 806.90; $\hat{\gamma}_{AS}$ = -9.91, t_{11333}= -2.80, $p < .01$, $\hat{\gamma}_{Intercept}$ = 746.22). That is, as predicted, the more similar a target's attractiveness score was to a participant's attractiveness score, as indicated by self-report or as rated by coders, the slower the participant's reaction time when evaluating the photo.

The third model was then conducted with both similarity scores (i.e., perceived and actual) entered simultaneously as fixed effects. Although the effect of perceived similarity in attractiveness remained a significant predictor of latency ($\hat{\gamma}_{PS}$ = -35.38, t_{10953} = -10.63, $p < .001$),

[3] There may be reason to suspect between-person differences in the strength of the predicted effects of similarity on latency. Testing for these differences involves expanding the models to include random slope components for each predictor (i.e., each index of similarity), which requires substantially more power than those models in which slopes are fixed. Given the sample sizes of the current studies, it was deemed most appropriate to fix the slope components for all analyses besides those specifically intended to test for between-person differences (i.e., when testing for gender moderation).

the effect of actual similarity was no longer significant ($\hat{\gamma}_{AS}$ = 4.39, t_{11289} = 1.16, p = .25, $\hat{\gamma}_{Intercept}$ = 805.28).

Given past work documenting a tendency for individuals to look longer at more attractive stimuli (Maner, Gailliot, Rouby, & Miller, 2007), it may be the case that the observed effect of similarity in attractiveness on latency is eliminated once target attractiveness is included in the model—an indication that the effect may not be as robust as predicted and that the two processes may not be entirely independent. To test this, target attractiveness was added to the third model as a fixed effect alongside perceived and actual similarity in attractiveness. In line with past work, target attractiveness was independently significantly predictive of latency, above and beyond perceived and actual similarity in attractiveness ($\hat{\gamma}_{TA}$ = 25.69, t_{9310} = 5.22, p < .001). The effect of perceived similarity on latency also remained significant and in the hypothesized direction when controlling for both actual similarity and target attractiveness ($\hat{\gamma}_{PS}$ = -12.21, t_{7236} = -2.21, p = .03). The effect of actual similarity in attractiveness on latency was again nonsignificant ($\hat{\gamma}_{AS}$ = 1.92, t_{11136} = .51, p = .61, $\hat{\gamma}_{Intercept}$ = 645.38).

Another alternative explanation for the findings might be that participants are picking up on target attributes beyond physical attraction, and that these observations may be driving the effects on reaction time. To test this, target warmth and competence were also added to the previous model as fixed effects, alongside perceived similarity in attractiveness, actual similarity in attractiveness, and target attractiveness. As can be seen in Table 2, perceived similarity in attractiveness remained a significant predictor of latency when target warmth and competence were added to the model. Once again, the effect of actual similarity on latency was not significant, while the effect of target attractiveness was. Interestingly, higher target competence

independently and significantly predicted greater latencies; the effect of target warmth on latency was not significant.

Gender Moderation. To test whether gender might moderate the observed effects, two additional models were constructed, one for each operationalization of similarity in attractiveness. Each of these models included a random intercept and random slope component to allow for between-person variability in the hypothesized effect of similarity in attractiveness on latency. Similarity in attractiveness (perceived or actual), gender, and the interaction between gender and similarity in attractiveness were entered into the model simultaneously. Parameter estimates revealed a significant interaction between actual similarity in attractiveness and gender ($\hat{\gamma}_{AS*Gender} = 44.40$, $t_{73} = 3.78$, $p < .001$) but not perceived similarity in attractiveness and gender ($\hat{\gamma}_{PS*Gender} = 1.61$, $t_{78} = .19$ $p = .85$). By probing the simple slopes, results showed that while the effect of actual similarity on latency was significant and in the hypothesized direction for women ($\hat{\gamma}_{AS} = -30.54$, $t_{78} = -4.30$, $p < .001$), the effect was not significant for men ($\hat{\gamma}_{AS} = 13.86$, $t_{70} = 1.48$, $p = .14$).

Discussion

Study 1A provided initial support that one's reaction time when evaluating a potential mate may serve as a signal of similarity in physical attractiveness, with greater similarity corresponding to slower response times, as predicted. Although this association was found with both actual and perceived similarity in attractiveness, perceived similarity served as the more robust of the two predictors, remaining significant when both indices of similarity were included in the model simultaneously, as well as when target attractiveness, target warmth, and target competence were also included as covariates. Target attractiveness was also shown to be a significant predictor of latency in the direction documented in previous research, with higher

target attractiveness predicting longer response times. Interestingly, and in line with past work on the matching effect, gender was shown to moderate the effect of actual similarity in attractiveness on latency, with the hypothesized effect being supported for women, but not for men.

Combined, these findings lend preliminary support that the process of evaluating a target relative to oneself, given just minimal information of the target, can be observed on an automatic level. Moreover, the findings of Study 1A show that this self-vs-other evaluative process of similarity in attractiveness can be isolated from the previously documented main effect of target attractiveness more broadly, thereby bolstering the claim that the two processes, although reliant in part on similar information (i.e., physical attractiveness), are empirically distinct and should be treated as such. Likewise, the comparisons between actual and perceived similarity in attractiveness echo previous work, highlighting the importance of considering the constructs both in isolation and relative to one another.

CHAPTER 3: STUDY 1B

The purpose of Study 1B was to conceptually replicate and extend the findings of Study 1A. While the first study provided a controlled test of H1, using standardized target photos taken from the Chicago Face Database, Study 1B aimed to expand the generalizability of the effect by replacing the target photos with those taken from real life dating profiles. Moreover, responses were collected entirely online, with participants uploading a photo of their choosing to the survey, rather than having a photo taken by a member of the research team. These slight shifts in methods allow for greater inferences about the ecological validity of the timed task.

Method

Participants. One hundred fourteen participants were recruited to participate in the online study through an email sent out to a large university listerv, advertisements on various social networking sites, and flyers posted throughout campus. Of those 114, 39 completed both the survey and the task. Two of those 39 did not meet the inclusion criteria (i.e., they were beyond the 18-25 year age range and reported being in a serious committed relationship) and were thus excluded from all analyses. The remaining 37 participants were on average 21.10 years old (*SD* = 2.35, *Range* = 18-25), 67.6% were female, 54.1% were White/Caucasian, and 8.1% identified as Hispanic.

Procedure. The methods of Study 1B were nearly the same as Study 1A with two key exceptions—the target photos for the timed task were sourced from publicly accessible online dating profiles rather than a controlled database and participants completed the study entirely online and were therefore asked to upload a photo of themselves rather than having a photo

taken. Specifically, participants were asked to upload a photo containing only them, cropped similarly to a driver's license (i.e., from their torso up), and to avoid photos in which their face was either obstructed or difficult to see due to distance or framing of the photo. One participant did not upload a photo and two participants were excluded for uploading a photo that did not meet the requirements. Again, all participants were entered into a drawing for one of two $50 Amazon gift cards which were distributed electronically once all data had been collected.

Timed reaction task. Two research assistants searched for publicly available photos on a popular dating site that could be used for the timed task. The criteria for the target photos were the same as those for participant photos: the photo should have only one person in it, it should be cropped from the torso up, and there should not be anything obstructing the face (e.g., sunglasses or a hat). Eight-hundred photos (i.e., 400 men and 400 women, of which 100 of each gender self-identified in their profiles as White, 100 identified as Black, 100 identified as Hispanic, and 100 identified as Asian) were collected and rated for attractiveness by a team of seven coders. Again, attractiveness was rated on ten-point scales (1: Least Attractive, 10: Most Attractive) and judges' ratings were averaged into one score for each target photo. Of the original 800 photos, 120 photos of women and 120 photos of men (25% White, 25% Black, 25% Hispanic, 25% Asian) were selected to span a wide range of attractiveness.

Photo ratings. Due to changes in the research team between stimuli selection and data analysis phases, the target photos had to be rated again by a separate group of judges. As in Study 1A, four judges within the same age range as the participants rated each participant photo and each target photo from the timed task for degree of physical attractiveness on ten-point scales (α = .79 and .70, respectively). Participants also rated their own attractiveness. Actual and perceived similarity scores for each participant-target pair were calculated just as they were in

Study 1A, as was each participant's self-enhancement score. Finally, judges coded all target photos for warmth and competence, using the same scales as Study 1A (α = .62 and .56, respectively).

Results

Means, standard deviations, and bivariate correlations for all variables can be found in Table 3.

Primary Analyses. As in Study 1A, three separate multi-level models with trial (Level 1) nested within participant (Level 2) were conducted to test H1, that participants would respond more slowly on trials where they were of similar attractiveness as the target. For the first two models, only one of index of similarity—perceived or actual—was entered as a fixed effect. The third model included both indices of similarity simultaneously. Again, all three models included a random intercept and fixed slopes. Results of the three models revealed the predicted effects. Greater perceived similarity in attractiveness ($\hat{\gamma}_{PS}$ = -46.58, t_{4296} = -11.18, $p < .001$; $\hat{\gamma}_{Intercept}$ = 878.78) and actual similarity in attractiveness ($\hat{\gamma}_{AS}$ = -37.93, t_{3950} = -7.60, $p < .001$; $\hat{\gamma}_{Intercept}$ = 840.96) significantly predicted longer reaction times on the task trials, when considered in isolation. Furthermore, unlike in Study 1A, when both indicators of similarity in attractiveness were entered into the model simultaneously, each remained a significant predictor of latency ($\hat{\gamma}_{PS}$ = -40.65, t_{3945} = -8.19, $p < .001$; $\hat{\gamma}_{AS}$ = -15.42, t_{3948} = -2.72, $p < .01$; $\hat{\gamma}_{Intercept}$ = 890.41).

To test how robust the observed effect was relative to other possible associations, target attractiveness was again incorporated into the third model as a fixed effect alongside both perceived and actual similarity in attractiveness. As in Study 1A, the effect of target attractiveness on latency was independently significant and positive, such that the more attractive a target was, the longer participants' reaction time on that trial. Unlike Study 1A, however, the

effect of perceived similarity in attractiveness on latency was no longer significant when target attractiveness was included in the model, while the effect of actual similarity was. See Table 4 for all model parameter estimates.

To examine whether the hypothesized effect on reaction time might be explained by target attributes beyond attractiveness, target warmth and competence were added to the previous model alongside target attractiveness, perceived similarity, and actual similarity in attractiveness. As in Study 1A, both target attractiveness and target competence were each significantly and positively predictive of latency. Unlike Study 1A, however, the effect of perceived similarity on latency was not significant, while the effect of actual similarity in attractiveness was. Again, the effect of target warmth on latency was not significant. All parameter estimates can be found in Table 2.

Gender Moderation. Two additional models were created to test for moderation of the effect of similarity in attractiveness on latency by participant gender. Models were specified in the same manner as Study 1A. Each model allowed for a random intercept and random slope component, and included similarity in attractiveness (perceived or actual), gender, and the interaction between gender and similarity in attractiveness as simultaneous predictors. Unlike Study 1A, gender did not moderate the effect of perceived similarity in attractiveness on latency ($\hat{\gamma}_{\text{PS*Gender}} = 2.10$, $t_{32} = .10$, $p = .92$) nor did it moderate the effect of actual similarity in attractiveness on latency ($\hat{\gamma}_{\text{AS*Gender}} = 15.29$, $t_{28} = .53$, $p = .60$).

Discussion

Study 1B replicated many of the findings of Study 1A, but in a context with greater ecological validity. Rather than drawing target photographs for the timed task from a standardized database, the photos for the timed task in Study 1B were sourced from real online

dating profiles. Moreover, participants were asked to upload photos of themselves to the survey, rather than having a research assistant take them. Even with these relaxed methodological parameters, the initial hypothesis—that greater similarity in attractiveness between a participant and target would predict slower reaction times—was supported. Indeed, both perceived and actual similarity predicted latency in the hypothesized direction. Both indicators of similarity remained significant when controlling for target warmth and competence, and actual similarity also remained significant when controlling for target attractiveness. Interestingly, the demonstrated effects were not moderated by gender, as they were in Study 1A, calling into question the robustness of those interaction effects. Study 2 was designed to provide yet a third opportunity to test the hypothesis, using a new sample, and to extend the investigation to consider the implications of this automatic evaluation process.

CHAPTER 4: STUDY 2

The purpose of Study 2 was to introduce the behavioral measure tested in Studies 1A and 1B to a real-world dating situation to see if one's automatic behaviors when evaluating a target's photo—insofar as they might signal an underlying process of detecting similarity in attractiveness—might predict whether the two hit it off in person. This particular aim provides an extension of the matching hypothesis under the lens of automatic behavior. Within the context of a speed-dating event, Study 2 tested both hypotheses: that slower reaction time in evaluating photos of potential mates would be predicted by greater similarity in physical attractiveness between the participants and target individuals (H1); and that one's reaction time in making said evaluations would subsequently predict greater reports of liking, closeness, and desire to affiliate with the target individual upon first meeting (H2).

Method

Participants. 168 participants signed up to participate in a speed dating event held on the campus of a large public university via emails distributed over a university listserv, flyers posted throughout campus, and handouts dispersed by research assistants. Due to an imbalance in reported gender and sexual orientation of those 168 and to maintain as close to a 1:1 gender ratio as possible (Finkel, Eastwick, & Matthews, 2007), only 107 were scheduled to attend the event. Of those, timed task data were provided by 75 participants in the days prior to the event[4], and 55

[4] Timed task data were collected from 75 participants; however two of the data files were misnamed. That is, two participants either entered incorrect ID numbers when starting the task or took the task twice, resulting in duplicates of two ID numbers. Because there was no way to determine the correct file for each ID, the four affected files were excluded from analyses.

attended the event[5]. The resulting sample of those who completed the timed task was on average 20.28 years old (*SD* = 1.90), 50.7% female, 76.1% White/Caucasian, and 91.5% not Hispanic.

Procedure. To sign up for the study, participants completed a ten-minute online survey—the link to which was provided within the recruitment emails and handouts. This survey contained the same personality measures and items concerning participants' dating history and preferences as the previous studies. Participants were also asked to upload a photo of themselves to be shared with the other participants as part of an activity before the event. At the end of the survey, participants were asked to provide their email address for scheduling purposes.

Within 48 hours of receiving a participant's survey responses, a member from the research team emailed them to confirm their seat at the event, or, in the case of uneven recruitment numbers (e.g., too few heterosexual men signed up compared to women), to tell them that they would be placed on the waitlist and notified once their seat was confirmed. Two days prior to the event, all participants whose seats had been confirmed were sent another email containing a link to a pre-event survey. The survey included one question asking participants to confirm that they would still be attending the event, as well as a link to the timed task.

The event itself was held on campus in a large auditorium. Slim rectangular tables were arranged in two long rows, with chairs on either side. Male participants were seated at one side of the table with female participants at the other. Participants dated the person sitting directly across from them before rotating around the table. Each date lasted four minutes, with two minutes in between for completing a post-date survey. Chair rotation alternated sides, such that after the first date, the men stood and shifted over one seat; after the second, the women stood

[5] Given the degree of attrition between initial recruitment and the final sample of participants who attended the event, a series of regression models were conducted to test for any differences in personality (BFI-10), self-esteem scores (RSE), or attractiveness (self-reported or coded) between those who attended and those who did not. No differences were found between the two groups on any of the measures.

and shifted over one seat, and so on. After the participants had their last date of the event, they each indicated their final preferences by writing down the ID numbers corresponding to the participants with whom they would like to share their contact information. Participants were sent the contact information of their matches within the 48 hours following the event. Matches were determined by each participant indicating that they would like to share their contact information with the other; if one person wished to share their information with another, but the other did not reciprocate, the two were not considered a match and no contact information was shared.

Approximately two months following the speed dating event, participants were emailed a follow up survey to assess if any contact had been made or relationships had been formed after and as a result of the event. Participants who completed the follow up survey were entered into a drawing to receive one of two $50 Amazon gift cards. At the conclusion of the follow up survey, participants were debriefed on the study's purpose and hypotheses and were thanked for their time.

Measures. ***Initial online survey.*** The initial online survey contained the same baseline measures detailed in Studies 1A and 1B (i.e., the modified BFI-10, RSE, as well as the items about their dating history and preferences). Participants were also asked to upload a photo of themselves to be shared with the other participants as part of the timed task. The photo was to include only the participant, was to be cropped from the torso up, and was to avoid having anything obstructing their face (e.g., sunglasses or a hat).

Timed task. The task that was sent to participants two days prior to the event was the same as in previous studies with regards to instructions and general procedure, however instead of evaluating photos taken from an existing database or online dating site, participants responded to the photos uploaded by the other study participants. Given the notable gender disparity in

recruitment success, this resulted in 113 photos of women and 48 photos of men. Seven additional photos of women and 72 photos of men, taken from the online dating sites used in Study 1B, were added to the task to result in 120 photos for each participant to evaluate. The prompt that preceded the task was as follows:

> "In preparation for the event, we would like you to complete a brief activity using the photos we had you and the rest of the participants upload in the initial survey. Specifically, we are interested in how people form first impressions of one another. For this task, you will be presented with a number of photos. The person in each photo may or may not be someone you will meet at the speed dating event. Likewise, you may meet people at the event that are not pictured in this task. Indicate your desire to date each person by hitting either the F or J key. If you would want to date the person in the picture, hit the J key. If you would not want to date the person, hit the F key. Once you have provided your answer, another person's photo will appear. Repeat this process until you have responded to all photos.
>
> Importantly, we are looking for your gut response and would thus like you to answer as quickly as possible. To discourage lengthy deliberation, you will be timed, and any especially slow responses will be flagged. Furthermore, your responses will be kept entirely confidential; no one beyond the research team will ever see how you responded to any of the photos, nor will your responses be used to determine who you interact with at the event. Please be as honest and as fast as possible."

Post-date survey. Upon arriving at the speed dating event, participants were given a packet of paper surveys, each labeled according to their unique study ID number, two nametags (i.e., one containing their ID number and a blank one on which they could write their name), a

clip board, and pen. The one page post-date survey that participants completed after each speed date had them rate how the interaction went, how much they thought they had in common with their date, how physically attractive they found their date, as well as how much they liked their date, how close they felt to their date, and how willing they would be to go on another date with that person (i.e., a measure of affiliation).

The specific items used to assess how well the interaction went were: "The interaction went very smoothly," "The interaction was effortless and easy to have; things seemed to come naturally," "I felt like my date and I were on the same wavelength during the interaction," "I felt like my date seemed interested in what I was thinking and feeling during the interaction," and "I felt like my date saw the 'real' me during the interaction." Items were rated for agreement (1: Strongly Disagree, 7: Strongly Agree) and averaged to obtain one score per participant ($\alpha = .92$). Similarity was assessed with one item, also rated on a seven-point scale: "In general, it is clear that my date and I have a lot in common" (1: Strongly Disagree, 7: Strongly Agree). Physical attractiveness was rated on the same ten-point scale as in the previous studies (1: Least Attractive, 10: Most Attractive); participants were told that their rating "should be your general evaluation of his/her attractiveness, not necessarily a comparison to the other dates you have had at this event."

Overall liking was assessed with one item: "Please rate the degree to which you liked this person" (1: Strongly Disliked, 7: Strongly Liked). Closeness was measured with the Inclusion of the Other with the Self Scale (IOS; Aron, Aron, & Smollan, 1992), with contains only one item in which participants are asked to select the best representation of how close they feel to the other person from seven sets of increasingly overlapping circles. Desire to affiliate with each date was assessed with two items, one that asked participants: "To what extent would you be

willing to go on another date with this person after the event?" (1: Extremely Unwilling, 7: Extremely Willing); and another that assessed their immediate decision to share their contact information with that person following the event, to which participants circled "yes" or "no." Participants were informed that they would have a chance to confirm their answer to the second of these questions at the end of the event on a separate form, but that we wanted to get their initial assessment with here as well. Finally, because our hypotheses rest on the assumption that each participant pair had not yet met one another, and that these were indeed their first impressions of one another, participants were asked to indicate the extent to which they knew each person prior to the event (i.e., "This person was a complete stranger," "We've met before, but only briefly," "We are acquaintances," or "We know each other well").

Follow-up contact and survey. Within two days following the speed dating event, a member of the research team distributed contact information according to participants' matches. Two months following that, all participants were sent a link to a brief follow-up questionnaire. This questionnaire presented participants with the photos of the other people they met at the event, and asked them to select any with whom they had additional contact following the event. If a photo were selected, participants were then asked to clarify the means of contact (i.e., email, phone conversation, texting, contact via a social network site, meeting in person as friends, going on another date) as well as who initiated each form of contact and how well that contact went (1: Very Poorly, 7: Very Well). Participants then indicated the status of their current relationship with each selected individual as well as how they felt about that status. Finally, if participants indicated that they were dating someone they met at the event, they were then asked to rate how satisfied they were with the relationship (1: Very Dissatisfied, 7: Very Satisfied) and how close they felt to that person, again using the IOS.

Photo ratings. As in the prior two studies, four judges within the same age range as the participants rated each photo from the timed task (i.e., all participant photos as well as the filler photos taken from the target photos of the second study) for degree of physical attractiveness on ten-point scales ($\alpha = .80$). Participants again rated their own attractiveness on the same scale. Actual and perceived similarity scores for each pair of participants or participant-filler photo pair as well as participant self-enhancement were calculated in the same manner as Studies 1A and B. Judges also coded all photos for warmth and competence, using the same scales as before ($\alpha =$ .78 and .68, respectively).

Results

Descriptive statistics and bivariate correlations between all variables of interest can be found in Tables 5-7.

Hypothesis 1 Primary Analyses: Full Sample. To begin testing H1, multilevel models were conducted to analyze the timed task data in their entirety (i.e., the responses to all 120 target photos from the participants who completed the task). Again, three models were created to examine the effect of similarity in attractiveness on latency: the first and second models included just one index of similarity and the third included both indices simultaneously (i.e., both perceived and actual similarity in attractiveness). All three models included a random intercept and fixed slopes.

Results revealed consistent support for H1. Indeed, both perceived and actual similarity in attractiveness significantly predicted trial latency in the hypothesized direction, when entered into two separate models ($\hat{\gamma}_{PS} = -44.54$, $t_{7969} = -14.76$, $p < .001$; $\hat{\gamma}_{Intercept} = 995.71$; $\hat{\gamma}_{AS} = -33.87$, $t_{8006} = -10.24$, $p < .001$; $\hat{\gamma}_{Intercept} = 970.92$). As in Study 1B, both indicators of similarity also remained independently significant predictors of latency when each were included in the model

simultaneously ($\hat{\gamma}_{PS}$ = -38.22, t_{7876} = -11.68, $p < .001$; $\hat{\gamma}_{AS}$ = -17.59, t_{7950} = -4.94, $p < .001$; $\hat{\gamma}_{Intercept}$ = 1012.58).

Ruling out alternative hypotheses, results show that both perceived and actual similarity in attractiveness remain significant unique predictors of latency in the hypothesized direction when target attractiveness, target warmth and competence are all included in the model as covariates. Again, target attractiveness was found to be a unique significant predictor of latency, with greater attractiveness corresponding to longer reaction times. Interestingly, and unlike Studies 1A and 1B, target competence was not predictive of reaction time, while target warmth was. See Tables 2 and 8 for parameter estimates.

Hypothesis 1 Gender Moderation: Full Sample. Participant gender was again explored as a possible moderator for the effect of similarity in attractiveness on reaction times in the same manner as the previous two studies (i.e., in two separate multilevel models with random intercept and random slope components, and with similarity in attractiveness [perceived or actual], gender, and the interaction between gender and similarity in attractiveness entered simultaneously). Results showed that although gender did not moderate the effect of perceived similarity in attractiveness on latency ($\hat{\gamma}_{PS*Gender}$ = 6.93, t_{71} = .73, p = .47), it did moderate the effect of actual similarity on latency ($\hat{\gamma}_{AS*Gender}$ = 29.54, t_{68} = 2.68, $p < .01$). In line with Study 1A, probing the simple slopes for the actual similarity model reveals that, although the hypothesized effect was significant for both genders, it was stronger for women ($\hat{\gamma}_{AS}$ = -47.06, $t_{65.75}$ = -6.18, $p < .001$) than for men ($\hat{\gamma}_{AS}$ = -17.42, $t_{71.01}$ = -2.20, $p < .05$).

Hypothesis 1 Primary Analyses: Speed Dating Sample Only. To test both hypotheses in the context of the speed dating event specifically, the data were restricted to include only those

responses made between the heterosexual pairs at the event[6]. That is, although participants completed the reaction time task for all 120 target photos, only the responses toward the 10 to 13 people they met at the event (and would therefore have reported on liking, closeness, and affiliation; H2) were included in this second round of analyses.

Given the asymmetric block design of the speed dating paradigm, whereby every participant from one side of the table (e.g., every man) interacted with every participant from the other side of the table (e.g., every woman), there are violations to data independency assumptions that go beyond basic multi-level modeling strategies. Instead, an analytic framework called the Social Relations Model (SRM; Kenny & La Voie, 1984) is traditionally used. Unfortunately, the models for the current data faced issues with convergence, rendering the parameter estimates uninterpretable.

As the next best option, the data file was split in half by gender and a series of random intercept multilevel models similar to those used in the previous studies were conducted. Results revealed slight differences between the male and female samples. When examining perceived similarity in isolation, the models revealed a significant effect on latency in the hypothesized direction for women ($\hat{\gamma}_{PS}$ = -53.97, t_{189} = -2.82, $p < .01$, $\hat{\gamma}_{Intercept}$ = 1014.59), but not for men ($\hat{\gamma}_{PS}$ = -45.22, t_{214} = -1.86, $p = .06$, $\hat{\gamma}_{Intercept}$ = 976.95). Similarly, the effect of actual similarity in attractiveness on latency, when considered in isolation, was marginally significant for the women ($\hat{\gamma}_{AS}$ = -39.52, t_{203} = -1.80, $p = .07$; $\hat{\gamma}_{Intercept}$ = 976.28), and not at all significant for the men ($\hat{\gamma}_{AS}$ = 20.66, t_{212} = .99, $p = .33$; $\hat{\gamma}_{Intercept}$ = 884.78), echoing the gender differences observed in prior analyses.

[6] Although participants were not excluded on the basis of sexual orientation, the number of individuals wanting to participate in a same-sex speed dating event was too small and too underpowered for proper hypothesis tests. As such, only mixed-sex pairs were analyzed for the current report (N=46).

Both indices of similarity in attractiveness were then included in the models simultaneously to reveal similar results for both genders: the effect of perceived similarity on latency was significant and in the hypothesized direction ($\hat{\gamma}_{PS}$ = -50.11, t_{122} = -2.21, p = .03; and $\hat{\gamma}_{PS}$ = -51.58, t_{209} = -2.08, p = .04, for women and men, respectively), while the effect of actual similarity in attractiveness was not ($\hat{\gamma}_{AS}$ = -8.14, t_{126} = -.32, p = .75, $\hat{\gamma}_{Intercept}$ = 1020.51; $\hat{\gamma}_{AS}$ = 29.22, t_{203} = 1.38, p = .17, $\hat{\gamma}_{Intercept}$ = 937.75, for women and men, respectively)

Target attractiveness was then entered into the model alongside both indices of similarity for both the male and female subsamples. Unlike the prior analyses, when target attractiveness was included in the models, the effects of similarity in attractiveness on latency were not significant for either perceived or actual similarity across either of the two genders. Interestingly, the effect of target attractiveness was also found to be nonsignificant. See Table 9 for model parameter estimates.

Target warmth and competence were then entered simultaneously as covariates alongside perceived similarity, actual similarity, and target attractiveness for each subsample. When all five predictors were entered simultaneously, the only uniquely significant effect was that of target warmth on men's latency ($\hat{\gamma}_{TW}$ = 85.38, t_{190} = 2.75, p < .01). All other effects were not significant (all p's > .05). This is not entirely unexpected, given the relatively small sample sizes and complexity of the models. It is worth noting, however, that by removing target attractiveness from the two models, the effect of perceived similarity on latency was again significant and in the hypothesized direction for women ($\hat{\gamma}_{PS}$ = -49.52, t_{118} = -2.17, p = .03) and was of marginal significance for men ($\hat{\gamma}_{PS}$ = -44.02, t_{203} = -1.73, p = .09).

Hypothesis 2. Analyses then tested the second hypothesis—that one's reaction time to a target's photo, as an index of similarity in attractiveness, will be associated with greater reports

of liking, closeness, and desire to affiliate with the target individual. First, bivariate correlations between latency and each of the aforementioned speed dating outcomes were examined. As can be seen in Table 7, initial support for the second hypothesis was found: the slower a participant's reaction time when evaluating a target during the task, the greater their reports of liking toward and desire to affiliate with the target following the speed date.

Of course, bivariate correlations do not account for the nested structure of the data. As such, an additional set of multilevel models were conducted with each of the speed dating outcomes regressed on trial latency, entered as a fixed effect. Again, the dataset was split in half by gender, with all models including a random intercept component and fixed slopes. Support for the hypothesis was mixed across genders; models revealed significant hypothesized effects of latency on all outcomes of interest for women but not for men. That is, for women, longer reaction times when evaluating a target on the timed task were predictive of higher reported interaction quality, greater liking and closeness, and more desire to go on a second date with the target after meeting at the speed dating event. For men, none of the aforementioned associations were found, though the coefficients were in the predicted direction. Table 10 provides parameter estimates, with trial latencies converted to seconds for ease of interpretation.

With evidence for the direct link between reaction time and relational outcomes, analyses then tested for the full hypothesized path (i.e., similarity in attractiveness influencing reaction times, which in turn predict each of the relational outcomes). Specifically, a series of 1-1-1 multilevel mediation models were conducted. Due to the smaller sample sizes for these analyses and to not overload the models, three separate clusters of analyses were conducted for each subsample. That is, rather than entering perceived similarity, actual similarity, and target attractiveness into the models as simultaneous predictors, a separate model was conducted for

each, with similarity or target attractiveness entered as the main predictor, trial latency as the mediator, and interaction quality, liking, closeness, or desire to affiliate as the outcome variable.

Although none of the indirect effects of perceived or observed similarity reached significance, there were a few effects of marginal significance found in the predicted direction for the women in the study. Specifically, the greater a woman's perceived or actual similarity to a target, the slower her reaction time in evaluating the target during the task, and subsequently the closer she felt ($\hat{\gamma}_{PS}$ = -.04, p = .06 and $\hat{\gamma}_{AS}$ = -.04, p = .08) and the stronger her desire to go on a second date with the target ($\hat{\gamma}_{PS}$ = -.05, p = .05 and $\hat{\gamma}_{AS}$ = -.06, p = .07). Results also revealed significant within-person indirect effects of target attractiveness on closeness and affiliative desires via trial response times, again for women, with greater target attractiveness predicting longer reaction times and subsequently greater closeness and desire to go on a second date with the target ($\hat{\gamma}_{TA}$ = .04, p = .04 and $\hat{\gamma}_{TA}$ = .06, p = .04 for closeness and affiliative desire, respectively). Indirect effects of marginal significance were also found for target attractiveness on interaction quality and liking for women, with greater target attractiveness predicting longer reaction times and, in turn, higher interaction quality and liking ($\hat{\gamma}_{TA}$ = .03, p = .08 and $\hat{\gamma}_{TA}$ = .04, p = .08 for interaction quality and liking, respectively). No significant or marginally significant indirect effects were found for the men in any of the models.

Discussion

Study 2 extended the timed task to a context that is more directly comparable to that of online dating: a speed-dating event. Again, consistent support was found for H1—that greater similarity in attractiveness would be associated with longer reaction times on the timed task—with effects proving more robust for women than for men. In addition to replicating the findings from Studies 1A and B, Study 2 allowed for tests of the second hypothesis: that slower reaction

time would in turn predict key outcomes upon first meeting. Ultimately, H2 garnered mixed support—both in the direct tests of latency on relational outcomes as well as in the mediation analyses of the full paths. Specifically, while it appeared that the hypothesized associations were supported, or at least trending toward significant, for the women in the sample, they were not observed for the men. Although caution should be taken when interpreting these findings due to the smaller sample sizes, these data do echo the overall pattern of results found in analyses exploring gender as a moderator across the three studies, suggesting perhaps that the utility of the timed task may be most apparent for women.

CHAPTER 5: GENERAL DISCUSSION

Increasingly, people are turning to online dating sites and applications as a way to initiate high quality relationships. Given previous data linking such relationships to one's overall health and wellbeing, the efficacy of a site's matching procedures becomes even more important. Unfortunately, typical matching algorithms not only often require notable effort on behalf of site users, but also rely heavily on bias-rife self-reported data. The current research proposes a return to basics by examining the utility of using one's automatic behavior, one's gut response, as an index of underlying mate selection processes and subsequent predictor of critical relational outcomes. The studies target a relatively neglected predictor of attraction and relationship formation—similarity in attractiveness—and further build the case for considering it as distinct from attractiveness more generally. Additionally, the current work considers the boundary conditions and nuances of the construct, parsing the distinction between perceptions and reality across both men and women.

Although not entirely new to relationships research, the amount of work that exists on similarity in attractiveness pales to that of target attractiveness more generally. The current studies aimed to emphasize the value in turning a dyadic lens on attractiveness to illustrate how the mate selection process is not only about evaluating the qualities of a potential mate, but that it also contains an element of comparison—an evaluation of the potential mate relative to oneself. The implications of this work speak to the broader literature on mate value, lending further support to the matching hypothesis, while the methods employed sought to extend this theory to the realm of automatic, implicit behaviors. Indeed, the current research not only builds

theoretical and conceptual clarity around the unique role that similarity in attractiveness plays in impression formation, but it also serves as the first test of whether the evaluative process underlying the construct might be measured on an automatic level. Data collected from three samples support each of these broad research aims.

Consistent support was found for the hypothesis that the more similar one is to a potential mate in terms of attractiveness, the longer he/she will take to evaluate the target during a timed task. Importantly, this finding was observed under the conservative task parameters of Study 1A, which pulled target photos from a standardized database and had participants' photos taken by trained research assistants, as well as in the more ecologically valid scenarios of Studies 1B and 2, where participants not only evaluated photos that were more in line with what they might actually encounter on a dating site, but were also at liberty to upload their own photos. These data affirm that not only do individuals engage in the process of evaluating similarity in attractiveness in the earliest stages of impression formation, but that this process can be measured automatically. Importantly, the predicted effects by and large held while controlling for target attractiveness more generally. These findings further confirm that evaluations of similarity in attractiveness and target attractiveness more broadly are two distinct constructs and should be treated as such. Moreover, the finding that target attractiveness independently predicted reaction time as well suggests that the processes are not only unique, but parallel. Put another way, participants' behaviors were not indicative of considering only ideal or only realistic choices (Berscheid et al., 1971), but perhaps a combination of both.

Another primary goal of the current research was to see if one's automatic behavior, insofar as it signals an underlying evaluation of similarity in attractiveness, could be used as a predictor of key relational outcomes upon first meeting. Again, this goal was motivated by the

observation that the existing matching procedures of online dating sites and applications are often effortful and subject to various reporting biases; might one predict successful matching via simpler means? The speed dating data from Study 2 suggest that, yes, automatic behavior might indeed provide the necessary information for predicting the likelihood that two strangers will hit it off in person. Longer reaction time when evaluating targets on the timed task corresponded to higher reported interaction quality, greater liking toward and felt closeness with the target, and greater desire to affiliate (i.e., go on a second date); although the effects were limited to women.

Interestingly, gender differences were observed in two out of the three samples, with the predicted effects being stronger for women than for men. These findings echo previous work in the mate value literature and attractiveness more broadly and suggest that the matching hypothesis may be more relevant to women's mate selection processes than men's. However, due to limitations in sample size—discussed in greater detail below—caution should be taken when interpreting these results. Further research, with larger sample sizes, is needed to explore whether the effects are truly more pronounced for women, and if so, why that might be the case.

Differences in effects were also observed when comparing perceived versus actual similarity in attractiveness. While perceived similarity seemed to be the more robust predictor of latency in two out of the three studies (i.e., Studies 1A and 2), actual similarity outperformed perceived similarity in Study 1B by remaining the significant predictor of latency when target attractiveness was included in the model. These discrepancies are consistent with prior work documenting differences in the extent to which perceived versus actual similarity influence relationship outcomes more broadly (Montoya, Horton, & Kirchner, 2008), and reiterate the need to consider both as independent constructs. Future research might try to probe these effects to explore the circumstances under which one measure of similarity in attractiveness is likely to

outperform the other. Potential moderators include the degree of disagreement between perceived and actual similarity, different relational motives or goals (e.g., those seeking casual versus committed relationships), and various individual differences like trait conscientiousness or self-esteem.

The current work holds direct implications for pair matching within the context of online dating sites. By incorporating a reaction time task similar to the one evaluated here, dating sites and applications may glean additional information about their users. Not only might users' reaction times serve as an index of similarity in attractiveness between the two, but they also hold direct predictive utility for whether the pair might hit it off on the first date, as illustrated by Study 2 results. Importantly, the timed task could be implemented within existing dating sites and applications with relatively little effort; for Tinder especially, it would not require changing the structure of the site nor would it notably increase effort on the part of site users. With just a few additional features, reaction time data could be integrated into a site's existing algorithms for a more complete matching package.

The current work holds implications beyond the realm of online dating as well. At a broad level, the behavioral measure introduced here extends methodological strategies common in other fields of psychology to an area that is otherwise heavily reliant on self-report—the study of first impressions and romantic attraction. Importantly, though, the implications of the timed task tested here may extend well beyond a purely romantic context to research on affiliative motives more broadly. For instance, one might easily modify the task instructions to assess different domains or levels of affiliation (e.g., "would you want to be friends with this person?") or alter the stimuli shown to assess responses to physical characteristics and similarities beyond general attractiveness (e.g., race, gender). The consistent finding in the current studies that

participants looked longer at targets who were rated as more competent lend support to the measure's flexibility and promise for future research.

Of course, there are a few limitations of the current studies that require addressing in future research. The most noteworthy limitation is the small sample sizes for Studies 1B and 2. Although results from these studies were consistent with the first, larger study, thereby providing some confidence in the observed effect, caution should still be taken in generalizing the findings. This is especially true for tests of the second hypothesis in Study 2. Because the sample had to be split in half to accommodate the added dependence of the speed dating data, and given that this hypothesis was tested only once, additional research is necessary before generalizing the observed gender differences. Replicating tests of the second hypothesis with larger samples will help to clarify whether the association between trial latency and in-person relational outcomes is truly unique to women or if the absence of the effect for men might simply be explained instead by the properties of the current sample.

Secondly, the current work examines the effectiveness of the behavioral measure in predicting relational outcomes after a first date. Future research might extend these findings using a longitudinal design that could track participants beyond the initiation of a relationship as a way to predict the measure's efficacy in predicting more long-term relational outcomes (e.g., satisfaction, commitment, passion). It is worth noting that the methods of Study 2 did include a follow-up questionnaire sent to participants two months following the event. This addition was intended to allow for more long-term tests of Hypothesis 2, like those proposed here; however, the sample size of respondents who indicated that they had contact or initiated a relationship with another participant they met at the event was ultimately too small for any formal analyses.

Thirdly, while the current studies provide compelling initial evidence of the measure's predictive utility, they do so in isolation. That is, the data show that one's behavior on the task is associated with one's evaluations upon first meeting, but they do not compare these associations to those gleaned from other possible methods of matching. Future research could pit the behavioral measure against established matching algorithms to see whether it might serve as a substitute for or simply a complement to existing self-reported data.

There were also a few specific methodological concerns of the current studies. The reliability scores between judges on ratings of target warmth and competence were especially low; caution should therefore be taken in interpreting results of analyses in which the two were included as covariates. Additionally, given the make-up of the study samples with regards to race, gender, and sexual orientation, the observed findings speak predominantly to white, heterosexual participants. Future research might focus on collecting a more diverse sample of participants to be better powered for testing possible moderated effects on the basis of the aforementioned demographic characteristics.

In summary, the current studies not only brought back into light a largely neglected construct in relationships research, but did so in a methodologically novel way. Evidence across three samples suggests that individuals do indeed automatically evaluate others on the basis of similarity in attractiveness. Moreover, the current work provides initial support for the value of one's gut reactions in forecasting interaction quality and attraction upon first meeting. Given the wealth of data linking high quality relationships to well-being, as well as the increase in popularity of online dating sites and applications for initiating these relationships, the importance of basic research on improving pair matching procedures is evident. The current studies function as a promising and necessary first step.

TABLES

Table 1
Study 1A descriptive statistics and bivariate correlations

	Variable	*N*	*M*	*SD*	*Range*	Bivariate Correlations							
						1.	2.	3.	4.	5.	6.	7.	8.
1.	Participant Attractiveness (Self-Reported)	113	6.35	1.24	1.00 – 10.00	1							
2.	Participant Attractiveness (Average Coder Ratings)	108	5.04	1.08	2.75 – 8.00	.13	1						
3.	Self-Enhancement	108	1.31	1.56	-3.75 – 5.50	.72***	-.59***	1					
4.	Target Attractiveness	228	4.49	.99	2.25 – 7.25	-.02*	-.13***	.07***	1				
5.	Target Warmth	228	4.20	.74	2.25 – 6.25	-.01	-.03**	.02	.41***	1			
6.	Target Competence	228	4.46	.86	2.25 – 6.50	-.004	-.02*	.01	.59***	.47***	1		
7.	Perceived Similarity in Attractiveness	12847	2.20	1.25	0.00 – 7.50	.54***	.11***	.36***	-.56***	-.25**	-.35***	1	
8.	Actual Similarity in Attractiveness	12280	1.34	1.00	0.00 – 5.75	.10***	.52***	-.29***	-.20***	-.13***	-.16***	.26***	1
9.	Latency – Restricted Range (250-2000ms)	11956	734.23	325.83	250.00 – 20000.00	.01	-.04***	.04***	.12***	.05***	.08***	-.05***	-.07***

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

Table 2

Results of multilevel models in which latency was regressed on perceived similarity in attractiveness, actual similarity in attractiveness, target attractiveness, target warmth, and target competence simultaneously

Predictor	Estimate	*SE*	*df*	*t*	*p*
Study 1A					
Intercept	628.73	38.59	1377	16.29	.000
Perceived Similarity in Attractiveness	-11.72	5.53	7244	-2.12	.034
Actual Similarity in Attractiveness	2.76	3.82	11129	.72	.469
Target Attractiveness	19.90	5.34	9947	3.73	.000
Target Warmth	-4.71	4.03	11342	-1.17	.242
Target Competence	13.39	3.89	11368	3.44	.001
Study 1B					
Intercept	585.49	53.67	316	10.91	.000
Perceived Similarity in Attractiveness	-6.43	7.21	3764	-.89	.373
Actual Similarity in Attractiveness	-13.34	5.65	3945	-2.36	.018
Target Attractiveness	34.00	6.60	3916	5.15	.000
Target Warmth	-1.95	5.48	3922	-.36	.722
Target Competence	16.88	6.83	3915	2.47	.013
Study 2: Full Sample					
Intercept	864.94	31.20	450	27.72	.000
Perceived Similarity in Attractiveness	-21.42	4.37	7676	-4.91	.000
Actual Similarity in Attractiveness	-23.33	3.73	7878	-6.26	.000
Target Attractiveness	16.92	3.77	8006	4.49	.000
Target Warmth	8.79	4.08	7961	2.16	.031
Target Competence	-.04	5.28	7939	-.01	.994

Note. Each model allowed the intercepts to vary across individuals, while slopes were fixed.
Study 1A $\hat{\tau}_{\text{Intercept}} = 35089.22$, $z = 7.11$, $p < .001$.
Study 1B $\hat{\tau}_{\text{Intercept}} = 29000.10$, $z = 3.98$, $p < .001$.
Study 2: Full Sample $\hat{\tau}_{\text{Intercept}} = 25615.71$, $z = 5.75$, $p < .001$.

Table 3
Study 1B descriptive statistics and bivariate correlations

	Variable	*N*	*M*	*SD*	*Range*	Bivariate Correlations							
						1.	2.	3.	4.	5.	6.	7.	8.
1.	Participant Attractiveness (Self-Reported)	37	6.57	1.21	3.00 – 8.00	1							
2.	Participant Attractiveness (Average Coder Ratings)	34	5.51	1.09	2.75 – 7.50	.38*	1						
3.	Self-Enhancement	34	1.04	1.28	-3.00 – 4.00	.62***	-.49**	1					
4.	Target Attractiveness	240	5.05	1.10	2.50 – 8.00	.05**	.02	.04*	1				
5.	Target Warmth	240	4.26	.97	2.00 – 6.50	.06***	.02	.04**	.32***	1			
6.	Target Competence	240	4.64	.86	2.50 – 6.75	.03*	.01	.03	.54***	.60***	1		
7.	Perceived Similarity in Attractiveness	4440	1.94	1.21	0.00 – 5.50	.49***	.31***	.18***	-.62***	-.16***	-.33***	1	
8.	Actual Similarity in Attractiveness	4080	1.33	.98	0.00 – 5.00	.17***	.25***	-.06***	-.36***	-.07***	-.20***	.49***	1
9.	Latency – Restricted Range (250-2000ms)	4308	783.49	314.32	268.00 – 1995.00	.006	-.07***	.09***	.15***	.05**	.11***	-.15***	-.10***

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

Table 4

Study 1B results of multilevel modeling in which latency was regressed on perceived similarity in attractiveness, actual similarity in attractiveness, and target attractiveness simultaneously

Predictor	Estimate	*SE*	*df*	*t*	*p*
Intercept	625.70	51.27	266	12.20	.000
Perceived Similarity in Attractiveness	-6.72	7.21	3765	-.93	.352
Actual Similarity in Attractiveness	-13.54	5.64	3947	-2.40	.016
Target Attractiveness	40.03	6.20	3895	6.46	.000

Note. The model allowed the intercepts to vary across individuals, while slopes were fixed.
$\hat{\tau}_{\text{Intercept}} = 28955.15$, $z = 3.98$, $p < .001$.

Table 5

Study 2 descriptive statistics for full sample

Variable	*N*	*M*	*SD*	*Range*
Participant Attractiveness (Self-Reported)	71	6.45	1.20	3.00 – 9.00
Participant Attractiveness (Average Coder Ratings)	71	5.22	1.17	2.00 – 8.00
Self-Enhancement	71	1.23	1.37	-3.00 – 4.25
Target Attractiveness	240	5.31	1.36	2.00 – 8.25
Target Warmth	240	4.22	1.17	1.50 – 6.50
Target Competence	240	4.34	1.02	1.75 – 6.50
Perceived Similarity in Attractiveness	8520	1.75	1.29	0.00 – 6.50
Actual Similarity in Attractiveness	8520	1.58	1.14	0.00 – 6.25
Latency – Restricted Range (250-2000ms)	8013	911.81	326.37	255.00 – 1999.00
Interaction Quality	505	5.07	1.20	1.00 – 7.00
Liking	504	4.64	1.33	1.00 – 7.00
Closeness	504	2.67	1.26	1.00 – 7.00
Affiliative Desire	504	3.84	1.67	1.00 – 7.00

Table 6

Study 2 descriptive statistics for only those heterosexual participants who attended the speed dating event, split by gender

	Women				Men			
Variable	*N*	*M*	*SD*	*Range*	*N*	*M*	*SD*	*Range*
Participant Attractiveness (Self-Reported)	21	6.29	1.19	4.00 – 8.00	24	6.33	1.27	3.00 – 8.00
Participant Attractiveness (Average Coder Ratings)	21	5.99	.99	4.25 – 8.00	25	4.67	1.03	3.25 – 6.25
Self-Enhancement	21	.30	1.50	-3.00 – 2.75	24	1.72	1.00	-.25 – 3.75
Target Attractiveness	25	4.67	1.03	3.25 – 6.25	21	5.99	.99	4.25 – 8.00
Target Warmth	25	3.90	1.00	2.25 – 6.00	21	5.06	1.01	2.50 – 6.50
Target Competence	25	4.28	.87	2.50 – 5.75	21	5.12	.74	3.50 – 6.50
Perceived Similarity in Attractiveness	242	1.85	1.23	.00 – 4.75	235	1.27	.90	.00 – 4.50
Actual Similarity in Attractiveness	242	1.62	1.09	.00 – 4.75	235	1.61	1.08	.00 – 4.75
Latency – Restricted Range (250-2000ms)	231	909.32	323.52	413.00 – 1832.00	221	921.22	317.62	294.00 – 1972.00
Interaction Quality	242	4.88	1.36	1.00 – 7.00	235	5.25	1.00	1.80 – 7.00
Liking	241	4.27	1.36	1.00 – 7.00	235	4.98	1.22	2.00 – 7.00
Closeness	242	2.36	1.18	1.00 – 7.00	235	2.95	1.27	1.00 – 7.00
Affiliative Desire	242	3.38	1.55	1.00 – 7.00	235	4.34	1.64	1.00 – 7.00

Table 7

Study 2 bivariate correlations

	Variable	Bivariate Correlations											
		1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
1.	Participant Attractiveness (Self-Reported)	1											
2.	Participant Attractiveness (Average Coder Ratings)	.33** (71)	1										
3.	Self-Enhancement	.59** (71)	-.56** (71)	1									
4.	Target Attractiveness	-.07** (8520)	-.19** (8520)	.10** (8520)	1								
5.	Target Warmth	-.07** (8520)	-.18** (8520)	.10** (8520)	.46** (240)	1							
6.	Target Competence	-.06** (8520)	-.17** (8520)	.09** (8520)	.64** (240)	.74** (240)	1						
7.	Perceived Similarity in Attractiveness	.37** (8520)	.17** (8520)	.18** (8520)	-.58** (8520)	-.30** (8520)	-.41** (8520)	1					
8.	Actual Similarity in Attractiveness	-.16** (8520)	-.09** (8520)	-.07** (8520)	-.004 (8520)	-.03** (8520)	-.07** (8520)	.25** (8520)	1				
9.	Latency – Restricted Range (250-2000ms)	-.06** (8013)	.003 (8013)	-.05** (8013)	.15** (8013)	.10** (8013)	.12** (8013)	-.19** (8013)	-.12** (8013)	1			
10.	Interaction Quality	-.07 (505)	-.08 (505)	.01 (505)	.10* (505)	.07 (505)	.10* (505)	-.09* (505)	.11* (505)	.08 (472)	1		
11.	Liking	-.08 (504)	-.24** (504)	.13** (504)	.19** (504)	.14** (504)	.19** (504)	-.08 (504)	.12** (504)	.10* (471)	.70** (504)	1	
12.	Closeness	-.08 (504)	-.16** (504)	.06 (504)	.18** (504)	.15** (504)	.17** (504)	-.11* (504)	.04 (504)	.03 (471)	.67** (504)	.60** (503)	1
13.	Affiliative Desire	-.10* (504)	-.27** (504)	.13** (504)	.28** (504)	.17** (504)	.18** (504)	-.20** (504)	.10* (504)	.14** (472)	.58** (504)	.78** (503)	.58** (503)

Note. Sample size is indicated in parentheses. * $p < .05$, ** $p < .01$, *** $p < .001$

Table 8

Full sample Study 2 results of multilevel modeling in which latency was regressed on perceived similarity in attractiveness, actual similarity in attractiveness, and target attractiveness simultaneously

Predictor	Estimate	*SE*	*df*	*t*	*p*
Intercept	889.46	29.46	361	30.19	.000
Perceived Similarity in Attractiveness	-21.55	4.36	7678	-4.94	.000
Actual Similarity in Attractiveness	-23.78	3.72	7883	-6.40	.000
Target Attractiveness	19.46	3.38	7990	5.76	.000

Note. The model allowed the intercepts to vary across individuals, while slopes were fixed.
$\hat{\tau}_{\text{Intercept}} = 25666.48$, $z = 5.75$, $p < .001$.

Table 9

Study 2 multilevel modeling parameter estimates for each predictor on trial latency, speed dating sample only

Predictor	Estimate	*SE*	*df*	*t*	*p*
Women Only					
Intercept	834.38	215.74	116	3.87	.000
Perceived Similarity in Attractiveness	-36.36	27.46	95	-1.32	.189
Actual Similarity in Attractiveness	6.53	30.43	100	.22	.831
Target Attractiveness	29.61	33.18	158	.82	.373
Men Only					
Intercept	858.85	175.23	158	4.90	.000
Perceived Similarity in Attractiveness	-47.32	26.42	170	-1.79	.075
Actual Similarity in Attractiveness	15.87	35.11	78	.45	.652
Target Attractiveness	15.85	33.37	143	.475	.636

Note. Each model allowed the intercepts to vary across individuals, while slopes were fixed.
Women Only $\hat{\tau}_{Intercept} = 19572.79$, $z = 2.22$, $p = .03$.
Men Only $\hat{\tau}_{Intercept} = 20703.85$, $z = 2.29$, $p = .02$.

Table 10

Study 2 multilevel modeling parameter estimates for the effect of latency (in seconds) on each speed dating outcome

Outcome	Estimate	*SE*	*df*	*t*	*p*
Women Only					
Interaction Quality	.57	.26	225	2.22	.028
Liking	.72	.28	219	2.54	.012
Closeness	.70	.23	227	3.05	.003
Affiliation	1.16	.31	227	3.74	.000
Men Only					
Interaction Quality	.13	.21	219	.60	.546
Liking	.42	.25	215	1.70	.091
Closeness	.23	.26	217	.90	.368
Affiliation	.60	.35	219	1.72	.087

Note. Each model allowed the intercepts to vary across individuals, while slopes were fixed.

FIGURES

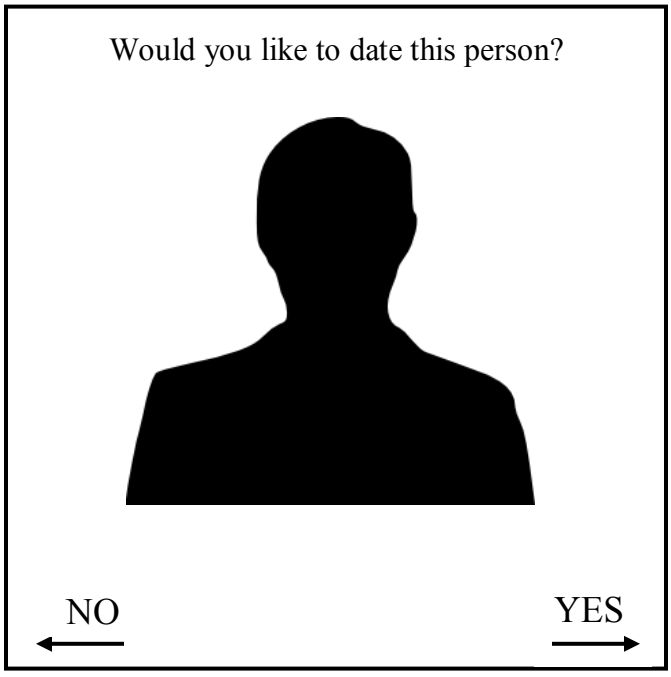

Figure 1. Sample practice trial for timed reaction task.

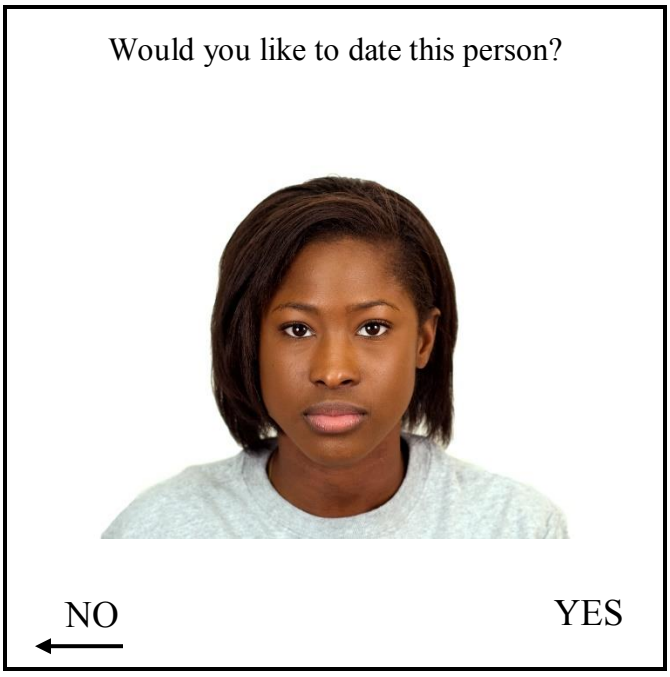

Figure 2. Sample test trial for timed reaction task.

REFERENCES

About Beautifulpeople.com. (n.d.) Retrieved August 13, 2016 from: https://www.beautifulpeople.com/about

Aharon, I., Etcoff, N., Ariely, D., Chabris, C. F., O'Connor, E., & Breiter, H. C. (2001). Beautiful faces have variable reward value: fMRI and behavioral evidence. *Neuron*, *32*(3), 537-551.

Alford, J. R., Hatemi, P. K., Hibbing, J. R., Martin, N. G., & Eaves, L. J. (2011). The politics of mate choice. *The Journal of Politics*, *73*(02), 362-379.

Aron, A., Aron, E. N., & Smollan, D. (1992). Inclusion of Other in the Self Scale and the structure of interpersonal closeness. *Journal of personality and social psychology*, *63*(4), 596.

Aron, A., Dutton, D. G., Aron, E. N., & Iverson, A. (1989). Experiences of falling in love. *Journal of Social and Personal Relationships*, *6*(3), 243-257.

Aron, A., Melinat, E., Aron, E. N., Vallone, R. D., & Bator, R. J. (1997). The experimental generation of interpersonal closeness: A procedure and some preliminary findings. *Personality and Social Psychology Bulletin*, *23*(4), 363-377.

Aronson, E., & Worchel, P. (1966). Similarity versus liking as determinants of interpersonal attractiveness. *Psychonomic Science*, *5*(4), 157-158.

Baumeister, R. F., & Leary, M. R. (1995). The need to belong: desire for interpersonal attachments as a fundamental human motivation. *Psychological bulletin*, *117*(3), 497.

Barrett, L. F. (2011). Was Darwin wrong about emotional expressions?. *Current Directions in Psychological Science*, *20*(6), 400-406.

Bartlett, M. S., Viola, P. A., Sejnowski, T. J., Golomb, B. A., Larsen, J., Hager, J. C., & Ekman, P. (1996). Classifying facial action. *Advances in neural information processing systems*, 823-829.

Berscheid, E., Dion, K., Walster, E., & Walster, G. W. (1971). Physical attractiveness and dating choice: A test of the matching hypothesis. *Journal of Experimental Social Psychology*, *7*(2), 173-189.

Burger, J. M., Messian, N., Patel, S., del Prado, A., & Anderson, C. (2004). What a coincidence! The effects of incidental similarity on compliance. *Personality and Social Psychology Bulletin*, *30*(1), 35-43.

Buss, D. M., & Shackelford, T. K. (2008). Attractive women want it all: Good genes, economic

investment, parenting proclivities, and emotional commitment. *Evolutionary Psychology*, *6*(1), 147470490800600116.

Byrne, D. (1961). Interpersonal attraction and attitude similarity. *The Journal of Abnormal and Social Psychology*, *62*(3), 713.

Byrne, D. E. (1971). *The attraction paradigm* (Vol. 11). Academic Pr.

Byrne, D., Clore Jr, G. L., & Worchel, P. (1966). Effect of economic similarity-dissimilarity on interpersonal attraction. *Journal of Personality and Social Psychology*, *4*(2), 220.

Byrne, D., Ervin, C. R., & Lamberth, J. (1970). Continuity between the experimental study of attraction and real-life computer dating. *Journal of Personality and Social psychology*, *16*(1), 157.

Byrne, D., & Griffitt, W. (1969). Similarity and awareness of similarity of personality characteristics as determinants of attraction. *Journal of Experimental Research in Personality*.

Carr, A. (2016, January 11). I found out my secret internal Tinder rating and now I wish I hadn't. *Fast Company*. Retrieved from http://www.fastcompany.com/3054871/whats-your-tinder-score-inside-the-apps-internal-ranking-system.

Cohen, S. (2004). Social relationships and health. *American psychologist*,*59*(8), 676.

Del Boca, F. K., & Noll, J. A. (2000). Truth or consequences: the validity of self-report data in health services research on addictions. *Addiction*, *95*(11s3), 347-360.

Dovidio, J. F., Kawakami, K., Johnson, C., Johnson, B., & Howard, A. (1997). On the nature of prejudice: Automatic and controlled processes. *Journal of experimental social psychology*, *33*(5), 510-540.

Eagly, A. H., Ashmore, R. D., Makhijani, M. G., & Longo, L. C. (1991). What is beautiful is good, but…: A meta-analytic review of research on the physical attractiveness stereotype. *Psychological bulletin*, *110*(1), 109.

Eastwick, P. W., & Finkel, E. J. (2008). Sex differences in mate preferences revisited: do people know what they initially desire in a romantic partner?.*Journal of personality and social psychology*, *94*(2), 245.

Eastwick, P. W., Finkel, E. J., Mochon, D., & Ariely, D. (2007). Selective versus unselective romantic desire: Not all reciprocity is created equal.*Psychological Science*, *18*(4), 317-319.

Ekman, P. (1993). Facial expression and emotion. *American psychologist*, *48*(4), 384.

Ekman, P., & Friesen, W. (1978). Facial Action Coding System: A technique for the measurement of facial movements. *Consulting Psychologists Press*, *2*.

Ekman, P., Davidson, R. J., & Friesen, W. V. (1990). The Duchenne smile: Emotional expression and brain physiology: II. *Journal of personality and social psychology*, *58*(2), 342.

Ellison, N., Heino, R., & Gibbs, J. (2006). Managing impressions online: Self-presentation processes in the online dating environment. *Journal of Computer-Mediated Communication*, *11*(2), 415-441.

Fazio, R. H., & Olson, M. A. (2003). Implicit measures in social cognition research: Their meaning and use. *Annual review of psychology*, *54*(1), 297-327.

Finkel, E. J., Eastwick, P. W., & Matthews, J. (2007). Speed-dating as an invaluable tool for studying romantic attraction: A methodological primer. *Personal Relationships*, *14*(1), 149-166.

Finkel, E. J., Eastwick, P. W., Karney, B. R., Reis, H. T., & Sprecher, S. (2012). Online dating a critical analysis from the perspective of psychological science. *Psychological Science in the Public Interest*, *13*(1), 3-66.

Finkel, E. J., Norton, M. I., Reis, H. T., Ariely, D., Caprariello, P. A., Eastwick, P. W., Frost, J. H., & Maniaci, M. R. (2015). When does familiarity promote versus undermine interpersonal attraction? A proposed integrative model from erstwhile adversaries. *Perspectives on Psychological Science*, *10*(1), 3-19.

Fisman, R., Iyengar, S. S., Kamenica, E., & Simonson, I. (2006). Gender differences in mate selection: Evidence from a speed dating experiment. *The Quarterly Journal of Economics*, 673-697.

Frank, M. G., Ekman, P., & Friesen, W. V. (1993). Behavioral markers and recognizability of the smile of enjoyment. *Journal of personality and social psychology*, *64*(1), 83.

Fredrickson, B. L. (2013). Positive emotions broaden and build. In E. Ashby Plant & P.G. Devine (Eds.), *Advances on Experimental Social Psychology*, 47, 1-53. Burlington: Academic Press.

Friese, M., Hofmann, W., & Wänke, M. (2008). When impulses take over: Moderated predictive validity of explicit and implicit attitude measures in predicting food choice and consumption behaviour. *British Journal of Social Psychology*, *47*(3), 397-419.

Fuller-Iglesias, H., Sellars, B., & Antonucci, T. C. (2008). Resilience in old age: Social relations as a protective factor. *Research in Human Development*, *5*(3), 181-193.

Gable, S. L., Gosnell, C. L., Maisel, N. C., & Strachman, A. (2012). Safely testing the alarm:

Close others' responses to personal positive events. *Journal of personality and social psychology*, *103*(6), 963.

Gallo, L. C., Troxel, W. M., Matthews, K. A., & Kuller, L. H. (2003). Marital status and quality in middle-aged women: Associations with levels and trajectories of cardiovascular risk factors. *Health Psychology*, *22*(5), 453.

Gibbs, J. L., Ellison, N. B., & Heino, R. D. (2006). Self-presentation in online personals the role of anticipated future interaction, self-disclosure, and perceived success in Internet dating. *Communication Research*, *33*(2), 152-177.

Glass, T. A., & Maddox, G. L. (1992). The quality and quantity of social support: stroke recovery as psycho-social transition. *Social science & medicine*, *34*(11), 1249-1261.

Goffman, E. (1952). On cooling the mark out: Some aspects of adaptation to failure. *Psychiatry, 15*, 451-463.

Gonyea, R. M. (2005). Self-reported data in institutional research: Review and recommendations. *New directions for institutional research*, *2005*(127), 73-89.

Gorin, A. A., & Stone, A. A. (2001). Recall biases and cognitive errors in retrospective self-reports: A call for momentary assessments. *Handbook of health psychology*, *23*, 405-413.

Gonzaga, G. C., Campos, B., & Bradbury, T. (2007). Similarity, convergence, and relationship satisfaction in dating and married couples. *Journal of personality and social psychology*, *93*(1), 34.

Graham, J., Haidt, J., & Nosek, B. A. (2009). Liberals and conservatives rely on different sets of moral foundations. *Journal of personality and social psychology*, *96*(5), 1029.

Greenwald, A. G., McGhee, D. E., & Schwartz, J. L. (1998). Measuring individual differences in implicit cognition: the implicit association test. *Journal of personality and social psychology, 74*(6), 1464.

Hancock, J. T., & Toma, C. L. (2009). Putting your best face forward: The accuracy of online dating photographs. *Journal of Communication*, *59*(2), 367-386.

Hitsch, G. J., Hortaçsu, A., & Ariely, D. (2005, January). What makes you click: An empirical analysis of online dating. In *2005 Meeting Papers* (Vol. 207). Society for Economic Dynamics.

Holt-Lunstad, J., Smith, T. B., & Layton, J. B. (2010). Social relationships and mortality risk: a meta-analytic review. *PLoS medicine*, *7*(7), 859.

Horai, J., Naccari, N., & Fatoullah, E. (1974). The effects of expertise and physical attractiveness upon opinion agreement and liking. *Sociometry*, 601-606.

How it works. (n.d.) Retrieved August 13, 2016 from: http://www.match.com/help/aboutus

Imhoff, R., Schmidt, A. F., Nordsiek, U., Luzar, C., Young, A. W., & Banse, R. (2010). Viewing time effects revisited: Prolonged response latencies for sexually attractive targets under restricted task conditions. *Archives of sexual behavior*, *39*(6), 1275-1288.

Johnson, D. J., & Rusbult, C. E. (1989). Resisting temptation: Devaluation of alternative partners as a means of maintaining commitment in close relationships. *Journal of Personality and Social Psychology*, *57*(6), 967.

Keltner, D., & Bonanno, G. A. (1997). A study of laughter and dissociation: distinct correlates of laughter and smiling during bereavement. *Journal of personality and social psychology, 73*(4), 687-702.

Keltner, D., & Gross, J. J. (1999). Functional accounts of emotions. *Cognition & Emotion*, *13*(5), 467-480.

Kenny, D. A., & La Voie, L. (1984). The social relations model. *Advances in experimental social psychology*, *18*, 142-182.

Kern, E. (2013). Meet Twine, the dating app that doesn't care how hot you are. Retrieved on August 13, 2016 from: https://gigaom.com/2013/07/31/meet-twine-the-dating-app-that-doesnt-care-how-hot-you-are/

Kiesler, S. B., & Baral, R. L. (1970). The search for a romantic partner: The effects of self-esteem and physical attractiveness on romantic behavior. In K. J. Gergen & D. Marlowe (Eds.), *Personality and social behavior* (pp. 155-165). Reading, MA: Addison-Wesley.

Klohnen, E. C., & Luo, S. (2003). Interpersonal attraction and personality: what is attractive--self similarity, ideal similarity, complementarity or attachment security?. *Journal of personality and social psychology*, *85*(4), 709.

Langlois, J. H., Roggman, L. A., Casey, R. J., Ritter, J. M., Rieser-Danner, L. A., & Jenkins, V. Y. (1987). Infant preferences for attractive faces: Rudiments of a stereotype? *Developmental psychology*, *23*(3), 363.

Langlois, J. H., Ritter, J. M., Casey, R. J., & Sawin, D. B. (1995). Infant attractiveness predicts maternal behaviors and attitudes. *Developmental Psychology*, *31*(3), 464.

Lee, L., Loewenstein, G., Ariely, D., Hong, J., & Young, J. (2008). If I'm not hot, are you hot or not? Physical-attractiveness evaluations and dating preferences as a function of one's own attractiveness. *Psychological Science*,*19*(7), 669-677.

Lemay, E. P., Clark, M. S., & Greenberg, A. (2010). What is beautiful is good because what is beautiful is desired: Physical attractiveness stereotyping as projection of interpersonal goals. *Personality and Social Psychology Bulletin*,*36*(3), 339-353.

Lucas, T. W., Wendorf, C. A., Imamoglu, E. O., Shen, J., Parkhill, M. R., Weisfeld, C. C., & Weisfeld, G. E. (2004). Marital satisfaction in four cultures as a function of homogamy, male dominance and female attractiveness. *Sexualities, Evolution & Gender*, *6*(2-3), 97-130.

Lundberg, K. B., & Payne, B. K. (2014). Decisions among the undecided: Implicit attitudes predict future voting behavior of undecided voters. *PloS one*, *9*(1), e85680.

Ma, D. S., Correll, J., & Wittenbrink, B. (2015). The Chicago face database: A free stimulus set of faces and norming data. *Behavior Research Methods*, 1-14.

Maison, D., Greenwald, A. G., & Bruin, R. (2001). The Implicit Association Test as a measure of implicit consumer attitudes.

Maner, J. K., Gailliot, M. T., & Miller, S. L. (2009). The implicit cognition of relationship maintenance: Inattention to attractive alternatives. *Journal of Experimental Social Psychology*, *45*(1), 174-179.

Maner, J. K., Gailliot, M. T., Rouby, D. A., & Miller, S. L. (2007). Can't take my eyes off you: Attentional adhesion to mates and rivals. *Journal of personality and social psychology*, *93*(3), 389.

McNulty, J. K., Baker, L. R., & Olson, M. A. (2014). Implicit self-evaluations predict changes in implicit partner evaluations. *Psychological science*, *25*(8), 1649-1657.

McNulty, J. K., Neff, L. A., & Karney, B. R. (2008). Beyond initial attraction: physical attractiveness in newlywed marriage. *Journal of Family Psychology*, *22*(1), 135.

Mikulincer, M., Shaver, P. R., Bar-On, N., & Ein-Dor, T. (2010). The pushes and pulls of close relationships: attachment insecurities and relational ambivalence. *Journal of personality and social psychology*, *98*(3), 450.

Montoya, R. M., Horton, R. S., & Kirchner, J. (2008). Is actual similarity necessary for attraction? A meta-analysis of actual and perceived similarity. *Journal of Social and Personal Relationships*, *25*(6), 889-922.

Murstein, B. I., & Christy, P. (1976). Physical attractiveness and marriage adjustment in middle-aged couples. *Journal of Personality and Social Psychology*, *34*(4), 537.

Norton, M. I., Frost, J. H., & Ariely, D. (2007). Less is more: the lure of ambiguity, or why familiarity breeds contempt. *Journal of personality and social psychology*, *92*(1), 97.

Nosek, B. A., & Banaji, M. R. (2001). The go/no-go association task. *Social cognition*, *19*(6), 625-666.

Payne, B. K., Cheng, C. M., Govorun, O., & Stewart, B. D. (2005). An inkblot for attitudes:

affect misattribution as implicit measurement. *Journal of personality and social psychology*, *89*(3), 277.

Payne, B. K., Govorun, O., & Arbuckle, N. L. (2008). Automatic attitudes and alcohol: Does implicit liking predict drinking?. *Cognition & Emotion*, *22*(2), 238-271.

Payne, B. K., McClernon, F. J., & Dobbins, I. G. (2007). Automatic affective responses to smoking cues. *Experimental and clinical psychopharmacology*,*15*(4), 400

Peterson, J. L., & Miller, C. (1980). Physical attractiveness and marriage adjustment in older American couples. *The Journal of psychology*, *105*(2), 247-252.

Price, R. A., & Vandenberg, S. G. (1979). Matching for physical attractiveness in married couples. *Personality and Social Psychology Bulletin*, *5*(3), 398-400.

Rammstedt, B., & John, O. P. (2007). Measuring personality in one minute or less: A 10-item short version of the Big Five Inventory in English and German. *Journal of research in Personality*, *41*(1), 203-212.

Reis, H. T. (2006). The Perceived Partner Responsiveness Scale. Unpublished manuscript, University of Rochester.

Reis, H. T., & Shaver, P. (1988). Intimacy as an interpersonal process. *Handbook of personal relationships*, *24*(3), 367-389.

Reisenzein, R., Studtmann, M., & Horstmann, G. (2013). Coherence between emotion and facial expression: Evidence from laboratory experiments. *Emotion Review*, *5*(1), 16-23.

Rosenberg, M. (1965). *Society and the adolescent self-image*. Princeton, NJ: Princeton University Press.

Rowatt, W. C., Cunningham, M. R., & Druen, P. B. (1999). Lying to get a date: The effect of facial physical attractiveness on the willingness to deceive prospective dating partners. *Journal of Social and Personal Relationships*,*16*(2), 209-223.

Rusbult, C. E. (1980). Commitment and satisfaction in romantic associations: A test of the investment model. *Journal of experimental social psychology*,*16*(2), 172-186.

Smith, A., & Duggan, M. (2013) *Online dating and relationships*. Washington, DC: Pew Research Center. Retrieved from: http://www.pewinternet.org/2013/10/21/online-dating-relationships/.

Stevens, G., Owens, D., & Schaefer, E. C. (1990). Education and attractiveness in marriage choices. *Social Psychology Quarterly*, 62-70.

Taylor, L. S., Fiore, A. T., Mendelsohn, G. A., & Cheshire, C. (2011). “Out of my league”: A

real-world test of the matching hypothesis. *Personality and Social Psychology Bulletin*, *37*(7), 942-954.

Terry, R. L., & Macklin, E. (1977). Accuracy of identifying married couples on the basis of similarity of attractiveness. *The Journal of Psychology*, *97*(1), 15-20.

Tidwell, N. D., Eastwick, P. W., & Finkel, E. J. (2013). Perceived, not actual, similarity predicts initial attraction in a live romantic context: Evidence from the speed-dating paradigm. *Personal Relationships*, *20*(2), 199-215.

Toma, C. L., Hancock, J. T., & Ellison, N. B. (2008). Separating fact from fiction: An examination of deceptive self-presentation in online dating profiles. *Personality and Social Psychology Bulletin*, *34*(8), 1023-1036.

Walster, E. (1970). The effect of self-esteem on liking for dates of various social desirabilities. *Journal of Experimental Social Psychology*, *6*(2), 248-253.

Walster, E., Aronson, V., Abrahams, D., & Rottman, L. (1966). Importance of physical attractiveness in dating behavior. *Journal of personality and social psychology*, *4*(5), 508.

We use math to find you dates. (n.d.). Retrieved August 13, 2016 from https://www.okcupid.com /about.

Werner, C., & Parmelee, P. (1979). Similarity of activity preferences among friends: Those who play together stay together. *Social Psychology Quarterly*, 62-66.

Who we are. (n.d.). Retrieved August 13, 2016 from: http://www.eharmony.com/about/ eharmony/

Zayas, V., & Shoda, Y. (2005). Do automatic reactions elicited by thoughts of romantic partner, mother, and self relate to adult romantic attachment? *Personality and Social Psychology Bulletin*, *31*(8), 1011-1025.