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INTERPERSONAL DYNAMICS IN ONLINE DATING

Profiles, Matching, and Discovery

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Nearly one in six Americans now use online dating sites or mobile applications to meet romantic partners (Smith, 2016). The popularity of online and mobile dating has increased three-fold over the past five years and continues to grow for several reasons. First, online dating has become less stigmatized and more normative, especially for younger populations (Finkel et al., 2012). Early online daters were viewed as desperate people who had difficulty meeting someone face-to-face or were socially awkward and this perception has steadily dissolved (Fiore & Donath, 2004; Gibbs et al., 2011). Second, daters can carefully form a romantic identity online and manage what others see. People shape their dating profiles to reveal who they are, while also trying to appear attractive and interesting to potential partners (Ellison et al., 2006; Toma et al., 2008), a phenomenon consistent with the idea that people selectively self-present online to manage others' impressions (Walther, 1996). Therefore, online dating has become popular not only because of its scale and the number of dating options it provides, but also because it allows the user to control the image and identity that he or she wants to project in the dating environment (Toma & Hancock, 2010).

While most online dating research has evaluated the strategies that people use to selectively self-present with photos or text, less attention has focused on other periods of the relationship initiation process that determine if two people will like each other and eventually meet. In this chapter, we investigate the dynamics of online dating by looking at three benchmarks of the dating experience. We first investigate the *profile stage* and evaluate how people use photos and text to form an online identity and enhance their appearance. Second, we examine the *matching stage*, a decision-making period when daters indicate romantic interest in a partner based on profile information. We identify how the matching process occurs and whom daters tend to match with. Finally, we discuss the *discovery*

phase, which occurs after profile matching but before a face-to-face interaction, when mediated conversation influences if people will meet in person. We iden-tify relationship and psychological dynamics that occur during the discovery phase and examine how they affect the possibility of a face-to-face meeting.

"Online dating" is an umbrella term for using the Internet or technology to facilitate a romantic connection and interaction. The three benchmarks of online dating discussed in this chapter apply to both web-based dating (e.g. eHarmony, OkCupid) and mobile dating applications (e.g. Tinder, Hinge). Most web-based sites have mobile versions but few dating applications operate on the Web. For clarity, when we discuss online dating, we conceptualize both web-based and mobile technologies unless one medium is specified.

The Profile Stage

Online dating starts as an intrapersonal phenomenon. All users create an online identity in the form of a profile. A profile serves as one's romantic identity to others in the network, and its purpose is to attract others' attention in an effort to develop future interactions and conversation. The profile is the first impres-sion that a dater can make of another person and, therefore, it is the catalyst for potential online and face-to-face interactions.

Most sites and applications allow daters to provide physical characteristics (e.g. height, body type) and other identification details (e.g. gender, orientation) that may be important to communicate to a prospective date. Photos are a major part of the profile stage because they offer clues about the person's appearance or interest in activities, and self-authored text allows users to provide information that could not be communicated in other parts of the profile. On some mobile dating applications, users can communicate more than physical and identification details in the profile. For example, Blackwell and colleagues (2015) describe how Grindr, a men-seeking-men dating application, allows users to identify romantic, relational, or sexual intentions. Grindr users can fill out a "looking for" section, although Blackwell and colleagues (2015) note that this indicator is not always effective because people often want to conceal their motivations for using the dating service or their identity.

Given that profiles are the first impression that partners receive, most daters strive to create an appealing and interesting representation of the self that will attract dates (Toma, 2015). An important question, however, is whether daters accurately represent their identity within the profile's contents. Prior work has found that, on average, most profiles are largely genuine because gross incon-sistencies between the profile and offline version of the self will likely result in an unfavorable in-person meeting (Ellison et al., 2011). There are instances, however, when profiles contain false information for self-enhancement pur-poses. Hancock and colleagues (2007) observed that men often overstate their height (by less than one inch) and women tend to understate their weight (by

approximately eight pounds) when comparing profile information to real-life measurements. Daters are also affected by the goal to appear interpersonally or physically attractive, with research revealing that women are more likely to alter their photographs than men (Toma & Hancock, 2010). Together, these data are consistent with gendered ideals; women often believe that being thin and appearing young is more attractive to men, and men believe that being tall is more attractive to women.

Why are dating profile deceptions subtle, but frequent? Considering that most daters want to meet a partner face-to-face (see Ellison et al., 2006), people may make small embellishments to meet societal standards of gender ideals. Profile fabrications cannot be egregious, however, because this would jeopardize the possibility of future in-person interactions. For example, if an online dater suggests that he is 6'0" on his profile, but is truly 5'11," this lie would likely go unnoticed and would not terminate the relationship. On the other hand, the dater who suggests that he is 6'4" on his profile when he is truly 5'9," would have created a discrepancy easily observed face-to-face. Obvious deceptions are likely intolerable, but smaller misrepresentations, distortions, or deceptions may be self-enhancing enough to make the person appear attractive and interesting over a dating pool that is potentially large (Ariely, 2012; Ellison et al., 2012; Finkel et al., 2012). Because people are mostly honest in their self-representations, the dating profile is conceptualized as a promise. That is, the fundamental characteristics of the offline individual (e.g. number of children) do not often differ from the person represented in the profile (Ellison et al., 2012), but other characteristics (e.g. height, weight) may differ slightly to nudge the positive impression of the partner.

Like physical characteristics, online daters may also enhance their self-presented identities in the text portions of the profile. A laboratory study by Toma and Hancock (2012) measured a dater's in-person height, weight, and age versus his or her profile height, weight, and age. Self-presentation discrepancies between offline and online attributes were then analyzed against the textual "about me" section of the profile. The data revealed that deceptions in the profile were associated with fewer self-references (e.g. *I*, *me*, *my*) and fewer negative emotion terms (e.g. *hate*, *dislike*). Self-references are markers of attention (Pennebaker, 2011) and suggest where the speaker is focusing the discourse (e.g. on the self or on the social world). Prior deception and language research has found that liars use fewer self-references than truth-tellers to psychologically distance the deception from the speaker (Newman et al., 2003), and a consistent effect was observed in the online dating environment.

Negative emotion terms, on the other hand, are often amplified in deceptive speech relative to truthful speech as liars may give off anxiety or distress cues in their language patterns (Ekman, 2001). Deceptions in the dating profile were associated with fewer negative emotion terms, a pattern inconsistent with most deception and language theory (see Hauch et al., 2015). Considering the goals of

online daters, which are to appear attractive, interesting, and likeable, it is reasonable that daters want to attract a partner by appearing positive and encouraging, instead of negative and unfavorable. Any negativity in the profile may produce warning signs for potential partners and daters purposefully exclude traces of negativity to enhance their self-presentation.

Taken together, the profile stage represents a time when users can create an online self that they want to communicate to potential dates. The prior evidence suggests that profiles are crucial to the dating process and can affect how people are perceived (Toma, 2015). Most profiles are genuine because they represent the core attitudes and representations of the user (Ellison et al., 2012). Embellishments in photos and other content are for self-enhancement purposes, but they are not extreme because an in-person meeting would be problematic if physical characteristics were demonstrably false.

The Matching Stage

After online daters create a profile, they respond to a variety of selection criteria (e.g. age, race, religion) that will refine their list of prospective dates, called matches. For web-based online dating, most sites follow a few popular designs (Finkel et al., 2012; Tong et al., 2016). Some websites like PlentyofFish.com follow a *see-and-screen* format in which daters can scroll through thousands of available profiles. Many see-and-screen sites have filters that allow daters to narrow down the dating pool based on searchable criteria such as height, weight, or location. Others employ matching *algorithms*; the most popular example is eHarmony's patented "Compatibility Matching System." On this website, daters are required to answer a series of questions about personality, interests, and traits. Based on the answers to these questions and a dater's stated selection criteria, the site then algorithmically culls his or her list of partners and provides a smaller, more manageable list of potential matches. Some *blended* sites like OkCupid.com provide both see-and-screen profile searching with a matching or compatibility score between the dater and his or her potential matches. Almost all of these dating websites have curated matches located on a single landing page for the dater to view.

For see-and-screen sites, the process of trying to find a match through profile search can be difficult and is often compared to a shopping experience or a marketplace (e.g. *relationshopping*; Heino et al., 2010; Whitty & Carr, 2006). Daters must "sell" themselves in the profile to be perceived as attractive and interesting during the matching stage. At the same time, daters must determine who and what information they want to "buy" based on the others' profiles. Therefore, a person has a higher chance of being selected if he or she matches the initial selection criteria of another, and fits his or her image of a desirable partner. As Finkel et al. (2012) describe, "you can only procure a redhead from a dating site if she wants you in return" (p. 16). Although the shopping metaphor applies

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to offline dating as well, its effects are magnified online because this process now happens at scale and faster than ever before. In fact, recent research has indicated that "choice overload" effects that occur in shopping or consumer environments can also occur in online dating environments. When faced with too many potential partners, daters report feeling overloaded with options, which can lead to feelings of reduced satisfaction with their partner-selection decisions, greater likelihood to reverse their decisions, and greater regret with their selected partners (see D'Angelo & Toma, 2017; Lenton et al., 2008; Tong et al., 2016; Wu & Chiou, 2009).

For users of algorithmic dating websites, the matching process can be a "black box" because matching and sorting algorithms are often not transparent. Users can provide information about their likes, dislikes, interests, and intentions, but it is unclear why or how certain partners are prioritized or how matches are presented to the dater. The lack of transparency with the algorithmic matching process can make daters feel like they have less control over their romantic decision making. While this can be satisfying for some users (Tong et al., 2017), it can also create feelings of disappointment if daters perceive that the algorithm is not providing a satisfactory amount or quality of romantic connections (see, e.g., Single Steve, 2011).

Mobile dating applications also make use of daters' profiles during the matching stage, but information fields are usually less detailed in mobile platforms than in web-based platforms. Also, most mobile dating applications make use of daters' geolocation data. Just like in web-based dating, users might indicate desirable mate selection criteria such as age, sexual orientation, and height or body type; but the geographical distance feature of mobile dating applications leverages the accuracy of smartphone technology to connect two people within a specific distance (Blackwell et al., 2015). After a variety of selection criteria are submitted, the dating application will create a list of potential matches, presenting each partner's profile to the dater individually. Daters view each profile and must decide whether or not they like the potential partner. In Tinder, for example, when daters are presented with a profile, they indicate their choice through haptic feedback. If a dater "swipes left" on another's profile this indicates dislike, which rejects any opportunity to match with the person in the profile. A "swipe right" suggests mutual interest and that the dater would like to connect (Ward, 2016).

There are important differences between the matching and decision-making processes across platforms within web or mobile. For example, after daters complete their profiles, submit answers to survey questions, and indicate their own selection criteria, daters on most web-based platforms can then message anyone on the site that they find interesting or attractive. In sites like OkCupid and PlentyofFish, as long as users maintain an active dating account, there are no restrictions on whom they may contact through the website. Other platforms like Tinder and Bumble require a "reciprocal interest" mechanism for conversation to occur. That is, daters can only message each other if both partners indicate

they are willing to communicate. As described, in Tinder when both mobile daters "swipe right," this signal of mutual interest opens communication channels for daters to exchange messages in the platform itself. The reciprocal interest feature is not unique to mobile platforms; in fact, eHarmony requires that daters begin with opening series of questions, and when both parties answer these questions, the matching process can continue.

With so many dating sites and applications on the market, it can be a difficult decision for daters to select which platform to use. Recent research indicates that certain personality characteristics affect daters' satisfaction with different designs and features. Tong and colleagues (2017) found that daters' need for cognition became an important factor that influenced people's willingness to use an algorithm for mate selection. When faced with a great amount of choice (e.g. approximately 800 profiles) that created overload, those daters with a low need for cognition were more likely to deploy the algorithmic agent to select partners on their behalf in an effort to reduce cognitive load. Daters high in need for cognition were also likely to use the algorithm to help sort potential partners, but not in response to feeling overloaded. Instead, high need for cognition daters used the algorithm as a form of adaptive decision making, adjusting their mate selection behavior by deploying technology according to the increasing amount of choice they encountered. Such findings indicate that aspects of one's personal identity are even reflected in how they use online dating technology to make connections.

Finally, after online daters craft their profile and browse their matches on the web or a mobile interface, whom do they decide to connect with? Prior research by Hitsch and colleagues (2010) observed that daters tend to match with those similar in age, race, and ratings of attractiveness. Significant, positive correlations were also observed for daters' height, income, and education level. These data demonstrate that for web-based online dating, people tend to match with those who are similar and attainable, rather than those who are exotic or "out of my league."

Once daters have gone through all of the decision making work of selecting a potential partner, whether based on profile information or matching algorithms, they then enter a new phase where the two daters determine if the relationship will progress to face-to-face. Below, we discuss research and open questions for this period of message exchange that often determines if two daters will meet.

The Discovery Phase

The time after people match on profiles and before daters meet face-to-face is a benchmark we call *the discovery phase*. We suggest that this a phase rather than a period or stage because a phase is typically flexible in nature. The discovery phase starts when daters begin to exchange messages via the dating platform (either mobile or web-based), but the end of mediated message exchange can occur

through many different means. Perhaps, the messages ended gradually as the conversation dissolved, daters moved the conversation to another medium, or daters met face-to-face. While profile and matching stages are relatively short because daters make decisions quickly and express clear interest or disinterest in another person, the discovery phase is typically longer and represents a time when daters become familiar with one another through conversation.

Prior work has investigated social, psychological, and relationship dynamics during the discovery phase. In their analysis of web-based daters, Hitsch and colleagues (2010) observed that the probability of receiving an email response from a partner differs by gender. Male-initiated messages to a partner are responded to less than 30% of the time, while female-initiated messages receive a response rate close to 50%. If daters do receive a response, men and women exchange approximately twelve messages before providing their contact information to a partner and possibly meeting him or her face-to-face. As expected, the chances of receiving an email back from a prospective date increases with profile and photo attractiveness. These data suggest that the information exchanged during the discovery phase is essential when daters are deciding whether to invest in the relationship. It is important to be initially attractive and interesting in the profile, but conversations are crucial for determining whether two people will progress to a more intimate medium off the dating platform (e.g. text messaging, phone calls) or meet face-to-face.

Given that online dating profiles provide a limited amount of information about a prospective partner, people use a variety of strategies to learn more about their match in the discovery phase. These methods are typically *extractive* (e.g. searching the web for an online dater to obtain information), *active* (e.g. saving a record of exchanged messages), *passive* (e.g. looking for consistencies or inconsistencies in a dating profile), or *interactive* (e.g. communicating with the prospective date to learn more). Gibbs and colleagues (2011) outline how people typically use artifacts in the mobile dating infrastructure (e.g. date of last login) or in other social media outlets to assess the partner during conversation (e.g. examining mutual friends on Facebook). People also use extractive methods and Internet resources (e.g. Google) to verify the information that people discuss during the discovery phase. For instance, if a dater mentions that he or she is a musician, a partner may look for online videos or sound clips to learn more about the date or to substantiate this information. In this case, videos or sound clips are called warrants (Walther & Parks, 2002), or items that bridge the offline and online world and hold daters accountable for details that are communicated.

Gibbs and colleagues (2011) also observed that daters often use interactive methods to verify that the partner created a truthful profile and continues to provide genuine information in conversation. This suggests that profiles are not enough to alleviate relationship concerns and people need to communicate to understand if the relationship will progress, to relieve anxieties in a high-stakes setting such as online dating, and to verify that the information exchanged during

the discovery phase is real. Therefore, daters gather additional data about their partner through message exchange with the hope of learning more about the individual (Whitty, 2008).

Interestingly daters' information-seeking behaviors also differ with respect to daters' romantic and relational goals. Corriero and Tong (2016) found that male users of Grindr varied in their amount of information seeking—daters seeking sexual encounters preferred greater amounts of interpersonal uncertainty and as a result, sought less interpersonal information about hookup partners. Those who were more relational-oriented in their goals were motivated to reduce uncertainty, and did so by searching for specific information that verified potential partners' self-presented profiles.

In a recent study, Markowitz and Hancock (2017) collected the conversations between mobile daters to understand how often people lie and the content of their deceptions. Daters rated the deceptiveness of each dating app message and on average, the majority of daters did not tell any lies, a finding consistent with prior work that suggests most people are honest with their everyday communication activities (Serota & Levine, 2015). Overall, slightly less than 10% of mobile dating messages were deceptive and participant lying rates were uncorrelated with attractiveness ratings of the partner, trust in the partner, or partner likeability. Instead, lying rates were positively correlated with dating motivations such as the need to find new sexual partners, to satisfy sexual curiosity, and to browse the pictures of others for entertainment.

Content analyses of the deceptive mobile dating messages revealed that over two-thirds of the participant lies were related to self-presentation (e.g. lies to appear attractive) and lies to manage availability. This suggests that impression management and identity formation is important for daters starting new romantic relationships on the mobile phone. Finally, Markowitz and Hancock (2017) observed a strong positive correlation between the number of lies from the dater and his or her partner. Called the *deception consensus effect*, this trend suggests that the more a dater lies, the more that he or she believes that the partner has lied as well. This effect is consistent with other research on false consensus biases, where people base the behavior of others on their own actions (Epley, 2015).

Trends and Future Directions

This chapter outlines the online dating experience through three benchmarks. The profile stage is a time when daters craft a profile, or an online identity for potential dates to evaluate and appraise. Daters spend a substantial amount of time creating an online dating profile because relationship success is largely dependent on the interest and attraction garnered in the profile stage. Next, the matching stage is a decision-making period of connecting with another person, based on his or her profile information. People tend to match with similar others, but the matching process can change depending on the features and designs of different

web-based sites and mobile dating applications. Finally, the discovery phase is an exploratory period when messages are exchanged between two daters to learn more about each other and determine if they want to meet face-to-face. People use profile artifacts (e.g. mutual friends), interactive strategies (e.g. message exchange), and extractive strategies (e.g. Internet browsing) to learn more about another person who is romantically interesting.

The prior studies suggest that most online dating research has been concerned with the impression management strategies people use during different periods of the relationship. Future work should identify how these strategies relate to intentions and goals for dating. There are open questions about why people browse online sites when they have little intent to meet someone face-to-face, or why committed individuals (e.g. those in a relationship or married) explore online dating. Understanding the motivations for use among these unique populations would be interesting to explore, especially if these individuals display behavioral patterns that could be detected. For instance, online daters who are simply browsing may not be appropriate to match with daters who are looking for a long-term partner. Perhaps using behavioral traces, such as the dater's rapidity of swiping, time spent on a profile, or number of messages sent to partners in the network to proxy their dating intentions, could improve matching algorithms and sorting.

A second consideration for future work is to understand the portfolio of dating services that people use to find a partner. It is unclear how many sites or mobile applications people use at one time to acquire matches and why people choose to include or exclude dating services from their repertoire. Are online dating services associated with stigmas that prevent people from joining? Is web-based online dating viewed as more serious than mobile applications? Some work is beginning to uncover the influence of daters' personality traits on platform use (Tong et al., 2017), but deeper investigation of the social dynamics and reputations of online dating sites is needed. In an industry crowded with sites and apps, it would be useful to know how and when daters select certain platforms over others, and what factors motivate them to change, swap, or quit using online dating technology altogether.

Finally, as mentioned, a goal of online dating is to eventually meet another person face-to-face. Are there parts of the profile stage, matching stage, or discovery phase that facilitate the in-person meeting? Prior work on deception in mobile dating conversations during the discovery phase (Markowitz & Hancock, 2017) observed that lying rates also did not affect whether two people met, likely because deception is difficult to detect (Bond & DePaulo, 2006) and most lies are subtle (Toma & Hancock, 2010, 2012). Therefore, it may be important to inspect all three benchmarks of the mobile dating relationship and interview daters, to understand the point when a dater decided that he or she would be comfortable meeting the other person face-to-face. These data would indicate which benchmark (e.g. profile stage, matching stage, discovery phase) is crucial for sustaining or dissolving the relationship.

Conclusion

Online daters begin their search for love with a profile. This profile contains a portfolio of photos, likes, and interests that advertise the self and it serves as an overview of the person's individual and romantic identity. Information in the profile is then used in the decision-making phase, where daters must choose to connect with other daters. Once daters make it through this matching and decision-making phase, they then engage in a period of message exchange, called the discovery phase, to determine if they will meet face-to-face. Daters draw on a variety of communication strategies, such as selective self-presentation and uncertainty reduction, to manage each of these dating benchmarks. The early phases of an online dating experience are crucial because people must first distill their identity into a single, attractive, but predominantly honest representation of the self. The stages of an online dating relationship build on each other, however, suggesting that success in online dating (e.g. meeting face-to-face and sustaining the relationship) is likely dependent on favorable impressions, decisions, and interactions at each phase of the online dating experience.

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