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Improving Online Dating with Virtual Dates

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Abstract

Online dating, a practice where singles visit a website to locate other singles, frequently fails to meet users' expectations. We suggest that this disappointment is due in part to online dating websites' failure to simulate face-to-face interactions, an essential component of the acquaintanceship process. We document users' general disappointment with online dating (Study 1) and their disappointment with specific dates arranged through an online dating website (Study 2). In Study 3 we introduce the Virtual Date, on which potential dating partners explore a virtual environment in an interaction analogous to a real first date (such as going to a museum), a pre-meeting intervention that led to greater liking after meetings had occurred (during speed-dates) than standard online dating.

Improving Online Dating with Virtual Dates

The man had misrepresented his appearance, his occupation, and his former relationship with my brother. He was not able to look me in the eye.

This date's physical stature was not clearly represented via photos. Not only was I not happy with the realistic presentation but he looked exactly like my Dad which I can not personally see as romantic potential.

– Two women describing dates with men they met online

Despite the disappointment expressed by these users, online dating has emerged as an undoubtedly popular way to meet potential partners: Some 11% of Internet users – 16 million Americans – have used an online dating website (Madden & Lenhart, 2006). The advent of online dating has both lowered the barrier to initiating contact (from a painful phone call to a click of a mouse) and simultaneously increased the number of available options. Despite this seeming promise, results have been decidedly mixed: Anecdotal evidence and market data suggests widespread user disappointment (Egan, 2003) and growth of the major online dating sites has slowed (JupiterResearch, 2005). These trends are particularly puzzling in light of recent research demonstrating a generally positive role for the Internet in forming and developing platonic relationships (e.g. Amichai-Hamburger, in press; Kraut et al., 2002; McKenna, Green, & Gleason, 2002; Nie, 2001; Sproull, Conley, & Moon, 2005). Given the positive effects of the Internet on non-romantic social life, there appears to be great potential for the Internet to improve romantic life as well.

Why does online dating fail to live up to expectations? We suggest that this disappointment is due in part to a crucial mismatch between the experience of online and offline dating. Dating offline involves navigating the world together and sharing

experiences, providing opportunities to engage in direct interaction and observation, allowing individuals to evaluate others for their relationship potential (Berger, 1979). Online dating, on the other hand, follows a consumer model of choice, where each option has a set of features (e.g., height, religion, hobbies) from which consumers must create an overall impression. In some sense, this is like asking people to predict the taste of food while restricting them only to the information on the packaging (grams of fat, number of calories, amount of fiber): While one might have some sense of how that food will taste, only sampling it for real can provide an accurate, holistic impression. In an attempt to bridge this key difference between online and offline dating, we created Virtual Dates, online interactions designed to improve online dating by allowing daters to interact in a virtual environment that mirrors first dates in the real world, such as chatting while wandering through a museum.

The Benefits of Online Dating?

Online dating offers at least three attributes that seem to make it superior to offline dating: more control over initiating and reciprocating contact, more options from which to choose, and more information about those options. Does the mismatch between the experiences of online and offline dating outweigh these benefits? Below, we review why many of the seeming benefits may have drawbacks, then describe how Virtual Dates offer a possible solution.

Control. Not known generally for his advocacy of personal agency, Mao Tse-tung – the victim of an unsuccessful arranged marriage to an older niece – was a strong opponent of arranged marriages (Chang & Halliday, 2005, p. 7). The implicit assumption in Mao's objection is that giving individuals more control rather than ceding

matchmaking to family members leads to better outcomes for those individuals. The clear and accelerating trend in most cultures away from arranged marriages, however, has not been an unqualified success. Some research even suggests that arranged marriages can be more successful than “love marriages,” though the evidence is mixed (see Myers, Madathil & Tingle, 2005; Yelsma & Athappilly, 1988). Additionally, it is well-established that friends and family are better at predicting relationship outcomes than individuals enmeshed in a relationship (e.g., Agnew, Loving, & Drigotas, 2001; MacDonald & Ross, 1999). Thus more control may be at best a qualified benefit to online dating.

Options. What about the promise of more options from which to choose?

Compare the hundreds of potential dates one finds when logging onto an online dating website to the handful of singles at any given party or bar. Unfortunately, while the lay view of choice is “more is better,” a growing body of literature suggests that increasing options can lead to suboptimal choices (Diehl, 2005) and can make settling on *any* option less likely (Iyengar & Lepper, 2000; Shin & Ariely, 2004). This issue is compounded by one of the presumed benefits of the Internet, decreased search costs (e.g., Ratchford, Lee, & Talukdar, 2003; Steckel et al., 2005), which merely makes it easier to generate more options. The analogies to dating are clear: Individuals empowered to seek out and test many different mates may be less likely to choose and be satisfied with one, due to the always available – and tantalizing – alternatives. Again, a seeming benefit of online dating may have costs.

Information. The final advantage of online dating is the seeming wealth of information available about potential partners. When viewing someone’s online profile,

an online dater has instant access to a wealth of information about that person. But is this the kind of information people need to decide who they will like? First, the information may be inaccurate. People may present their best selves online (Vazire & Gosling, 2004), a practice encouraged by Dr. Phil and Match.com's "Techniques for Presenting Yourself In The Best Possible Way." Second, people's desire to find partners can lead them to interpret ambiguous information as evidence of similarity, leading to unrealistically high expectations (Norton, Frost, & Ariely, 2006); such high expectations, when not met, lead to dissatisfaction (Norton & Goethals, 2004; Ofir & Simonson, 2001). More information is better only if it helps with the selection process, which the information in profiles may not do.

Virtual Dates

Given that online dating sites will continue to offer many options and require people to search themselves rather than rely on friends and family, we suggest that the area with the most promise to improve the practice of online dating is in the third area reviewed above, the fundamental problem of the mismatch between the kinds of information available in online and offline dating. Choosing partners online by sorting them on various attributes (e.g., height, weight, income, and favorite movies) – as if searching for a car or computer – lacks the crucial component of real-time interaction so crucial to the acquaintanceship process. We sought to change the kind of information available in online dating to more closely mirror face-to-face interaction, where people get a sense of others – in real time – that is simply not available through standard online dating websites. We used an evolving enriched chat platform, Chatcircles (Viegas & Donath, 1999), to create Virtual Dates, on which pairs of individuals navigate a shared

online space, exchanging real-time messages about the images in that environment. Previous research has demonstrated the benefits of adding image content (e.g. Churchill, Snowden, & Munro, 2001; Kraut, Fussell, & Siegel, 2003; Whittaker, 2003) with such artifacts serving as social catalysts to stimulate conversation (Karahalios, 2004). Virtual Dates thus bridge the gap between offline and online dating by increasing social presence in online interaction (see Walther, 1996), better simulating first dates in the real world.

Overview

We first document users' negative experiences with online dating. In Study 1, we chart the general disappointment online daters express with the practice, documenting how time invested fails to pay off in a commensurate number of face-to-face encounters. Additionally, even those email exchanges that do result in offline meetings fail to live up to expectations: Study 2 demonstrates the disappointment that individuals experience after arranging dates and meeting in person. We next introduce and test our intervention, Virtual Dates. We compare impressions formed through Virtual Dates with those created in typical online dating, by assigning participants either to read profiles or go on Virtual Dates with individuals with whom they subsequently went on speed-dates (Study 3).

Study 1: General Experiences with Online Dating

This first study documents people's general disappointment with their experiences with online dating, and explores whether one cause of this disappointment is that the search costs incurred in attempting to find a date outweigh the payoffs.

Method and Results

Participants ($N = 132$; 49 male, Age: $M = 39.37$, $SD = 11.91$) completed the survey by following a link on an online dating website.

We first asked participants to rate how much they liked three activities: online dating, “offline” or regular dating, and, as a comparison, how much they enjoyed watching movies, all on 10-point scales (1: *not at all* to 10: *very much*). None of these ratings varied by gender of participants (all $ps > .20$); we therefore collapsed results across gender. On average, participants liked online dating ($M = 5.46$, $SD = 2.34$) less than offline dating ($M = 7.02$, $SD = 2.24$), paired $t(131) = 6.16$, $p < .001$, suggesting that for all the seeming benefits of online dating, our online daters still found offline dating more enjoyable. This is not to imply, however, that people enjoyed either kind of dating: Enjoyment of both offline and online dating paled in comparison to enjoyment of watching a movie ($M = 7.80$, $SD = 2.20$), which was preferred to both kinds of dating, paired $ts \geq 3.06$, $ps < .01$.

Why does online dating receive such low ratings? Perhaps because the time that people invest in online dating is not rewarded. We asked participants how many hours per week they spent on the three phases of online dating: searching profiles (to find potential matches), emailing users (to attempt to arrange meeting with those matches), and actual face-to-face encounters. Participants reported spending an average of 5.21 hours per week searching through profiles and another 6.73 hours writing and responding to emails, all for a payoff of just 1.77 hours of offline interactions, significantly less than the time spent either searching or emailing ($ts \geq 6.72$, $ps < .001$); in total, the ratio of search time to interaction time was nearly 7 to 1.

After hours and hours of searching through countless profiles and writing countless emails, it is not surprising that people would be disappointed with an output of just one dinner or one meeting over a cup of coffee per week. If, however, those rare

meetings were to go well, online dating might still be effective. No one would mind spending 12 hours searching through profiles if they met their soul mate as a result. Study 2 therefore explores online daters' experiences on actual dates.

Study 2: Specific Experiences with Online Dating

In this study, we document the experience of online dating. We expected that even those online interactions that ended in dates would not fulfill expectations. We asked some participants how much they knew about and liked someone with whom they were about to go on a date, and asked others these same questions about someone with whom they had recently been on a date. We expected that evaluations of dates would be positive before a date occurred and less positive after these meetings.

Method and Results

Participants ($N = 247$; 112 male, Age: $M = 39.28$, $SD = 11.19$) were online daters who completed the survey by following a link on an online dating website.

Participants who completed the *pre-date* survey were asked to think about someone with whom they were about to go on a date, then were asked two questions designed to assess their expectations about that date: "How excited are you about the person you are going to go on a date with?" (1: *not at all* to 10: *very*) and "How would you characterize your expectations about this date?" (1: *low* to 10: *high*); we created a composite measure of liking from these two items (Cronbach's $\alpha = .85$). Participants who completed the *post-date* survey were asked to think of someone with whom they had recently gone on a date, and were asked the same questions with changes in tense (e.g., "How excited are you about the person you went on a date with?").

We found that the positive impressions of their partners that individuals had before dates ($M = 6.67$, $SD = 2.02$) were more negative after those dates had actually occurred ($M = 5.75$, $SD = 2.99$), $F(1, 243) = 9.04$, $p < .01$; there was no main effect for gender of respondent, and no interaction, $ps > .20$. On average, then, people's high expectations based on reading each other's profiles online were not met when they met in person offline, leading to decreased enthusiasm for their partners. Even the rare real-world contact made through hours and hours of effort on online dating sites fail to live up to expectations.

Study 3: Virtual Dates

We next explore an alternate means for people to meet online in an effort to decrease the general dissatisfaction with online dating observed in Study 1, specifically by attempting to improve the initial face-to-face interactions that Study 2 demonstrated were so disappointing. In Study 3, individuals either read profiles of or went on Virtual Dates with individuals they subsequently met during a speed-dating session. McKenna et al. (2002) demonstrated that individuals can like each other more if they are given an opportunity to chat online before chatting in person; we explored whether these effects could be translated into romantic liking when participants went on Virtual Dates, interacting with their partners online by navigating through virtual environments with images as triggers for conversation. In particular, we hoped to show that the images would prompt partners to discover shared interests and similarities, an important predictor of liking (Byrne, 1971).

Method

Participants ($N = 24$; 12 male, Age: $M = 27.06$, $SD = 5.13$) were recruited on an online dating website we created for the MIT community: thematchup.net. Participants completed the first two sections of the study – reading one profile and going on one Virtual Date – at their home or office by logging on to a pre-assigned website. One to two days later, participants met face-to-face for a speed-date. After the 4-minute speed-date, participants answered four questions about their partner: *How much do you like this person? How similar to you is this person? How excited are you about this person, and how comfortable do you feel with this person?* All questions were answered on a 10-point scale (1: *not at all* to 10: *very*). (See Figure 1 for a timeline of events).

Types of Contact

Virtual Dates. Participants logged onto the application using a pre-assigned URL, which randomly assigned an opposite-sex partner. Participants entered a room where they were represented by a circle in a color of their choice. Utterances, typed in a text box, appeared within a dynamic circle, then disappeared leaving a subtle trace. Participants could navigate the environment by moving their circles together or separately, chatting about the images displayed in the environment (e.g., Lisa Simpson and Jessica Simpson, George Bush and John Kerry). Each Virtual Date lasted for 15 minutes (see Figure 2 for a screenshot).

Personal Profiles. We used the personal profiles participants had created on our online dating site. They contained responses to multiple choice questions regarding occupation and school status, religion, relationship goals, and desire for children, as well as a username, headline, and an open-ended personal essay.

Speed-dating. One to two days after reading profiles and going on Virtual Dates, all participants then took part in a speed-dating event. Participants were seated in a room with tables arranged in a horseshoe shape; women sat on the outside of the horseshoe and men in the center with each woman facing a man. Partners had 4-minute unstructured conversations.

Results and Discussion

Interactions. In order to examine user experiences on Virtual Dates, we coded the text from these interactions on a variety of dimensions – described below – designed to capture the different aspects of these experiences.

As with traditional online dating emails, much of the conversation consisted of questions about the other person's demographics (age, occupation, religion, etc.) – some 75% of Virtual Dates contained such exchanges.

We were most interested in how the real-time Virtual Dates interface created interaction. First, the system itself created conversation – for instance, one user, on finding that both she and her date had selected the color green for their avatar, remarked “interesting that we both picked green.” Another user, referring to the movement of the avatars, said, “you are dancing circles around me” to which her partner responded, “like Fred Astaire – if he were a red circle.” In all, some 58% of conversations included exchanges centered on aspects of the chat environment.

Users also navigated the space as they would on a real date, moving through the space as they would through a museum. In fact, one user even wrote “I see we stumbled into an art gallery...” to which her partner replied “yesterday I was at the MFA; never thought this would be analogous (sic)”. They coordinated movement, as well, with one

person writing “Care to wander over to the simpsons?” Another pair, when one person suggested going toward Lisa Simpson and the other toward a picture of two people tangoing wrote, “we can do both – lisa then tango?” They even used movement to signify closeness – one user wrote “you lead, and I will follow” to which her partner replied “:-)”. In all, some 42% of conversations included specific reference to moving through the environment.

Most importantly, all of these factors combined to help people to uncover shared interests: 58% of conversations specifically built off the interface to uncover shared interests. One pair, after wandering together to the picture of the tangoing couple, discussed their favorite styles of dance (waltz, jitterbug stroll, jazz, hip-hop, disco freestyle) then discussed their recent experiences at their favorite club, at which point one user wrote “yes, i liked it. what would be important to you [to know about someone], before you would go there with a chatroom aquantance (sic)?” This couple moved all the way from a comment spurred by a picture to the intimation of a possible date. In fact, three of the couples exchanged email addresses – and one even exchanged telephone numbers – as their Virtual Dates ended.

Liking. Did these enriched interactions and discoveries of shared interests lead to increased liking? We calculated a composite measure of the four items that participants completed after speed-dating – liking, similarity, excitement, and comfort (Cronbach’s $\alpha = .85$) – to create an overall measure of liking for their partner.

As we predicted, participants who had been on Virtual Dates liked their partners significantly more ($M = 5.67$, $SD = 1.69$) than those who had read profiles ($M = 4.48$, $SD = 1.48$), $t(30) = 2.05$, $p < .05$.¹ Study 2 showed that people who engage in standard online

dating showed decreases in liking after such meetings; these results suggest that Virtual Dates make such face-to-face meetings better.

Follow-up Study. Of course, we were primarily interested in forming successful dating relationships, not just friendships. The fact that couples exchanged email addresses suggests that interest was more than platonic, but to test more rigorously whether the differences in liking between reading profiles and virtual dating were associated with increased romantic interest, we conducted another speed-dating study ($N = 24$) in which we both asked people to rate how much they liked their partners (1: *not at all* to 10: *very much*), and also asked them to characterize their overall impression of their partner by selecting among three options: *not interested in seeing the person again*, *interested in this person as a possible friend or professional contact*, or *interested in going on a date this person*. As expected, ratings of liking were highly correlated with this measure of interest, $r = .50$, $p < .001$. Thus the increases in liking we observed on Virtual Dates appear to be increases in romantic liking, not merely in platonic liking. But would the positive impressions formed during these brief interactions persist when participants left the speed-dating session? The available evidence suggests they would: In one investigation, impressions formed after a brief interaction with a stranger predicted relationship status months later (Sunnafrank & Ramirez, 2004, and see Berg, 1984).

General Discussion

Online dating facilitates introductions that would otherwise be nearly impossible to generate, in both the sheer number of options available and the relative ease with which contact can be initiated with those options. Thus online dating websites – and online communities more generally – are highly successful in allowing people to connect

with others outside of their existing social circles. The present research suggests, however, that when people are searching for romantic relationships, online dating leaves much to be desired. Study 1 demonstrated that people do not enjoy their online dating experiences – compared with offline dating, or even watching movies – in part because the time and effort invested in searching is not rewarded with a sufficient number of dates. Study 2 showed that even those searches and emails that do result in dates fail to live up to expectations. In Study 3, we introduced an intervention designed to improve the online dating experience, Virtual Dates, which simulated real first dates by allowing people to interact in real time. People were more positive about individuals with whom they had virtual dated than those whose profiles they had seen, effects that carried forward through an initial face-to-face meeting in a speed-date.

We have discussed Virtual Dates as a means of correcting – or at least attenuating – the overly optimistic views of potential partners that online daters seem to have before meeting in person, inaccurate views that are developed at least in part because people carefully construct their online profiles to reflect well on themselves. A different stream of research, however, has suggested that one of the issues with computer-mediated communication (CMC) in general is that it allows precisely what we are claiming it helps to correct: Careful construction of one's online persona, leading to distorted impressions (see Walther, 1996). How can we reconcile this seeming contradiction? In essence, the issue is to what CMC is being compared: real-world interaction, or static dating profiles. While it is true that CMC allows for more controlled self-presentation than face-to-face interaction (individuals can describe their appearance, for example, however they wish), it is *less* controllable than a static online dating profile, which can be carefully honed and

revised over weeks and months. On Virtual Dates, on the other hand, users have only seconds to construct responses to their partners' quips and queries. Compared to face-to-face interaction, then, Virtual Dates do permit distortion, but compared with standard online dating – the focus of this investigation – they correct it.

Life, Virtual and Otherwise

Our results suggest that Virtual Dates cause individuals to develop greater affinity toward one another when they actually meet, in line with other research showing the positive impact of CMC on rapport (e.g. McKenna et al., 2002; Nowak, Watt, & Walther, 2005). Nor are the benefits of such virtual interaction limited to liking: When performing collaborative tasks, being able to see one's team members can impede performance compared to teams who lack such social cues (Kraut et al., 2003). More generally, as discussed in the introduction, online life can foster social connections, creating entire communities of social support (see Rheingold, 1993). There is a real irony to results such as these suggesting the social benefits of online interaction, given the initial fear that online life would lead to superficial relationships and a breakdown of social fabric.

In fact, the seeming drawbacks of life online – the lack of face-to-face interaction and social presence – are in some cases the very aspects that offer benefits. In education, for example, “microworlds” allow students to explore and learn about complex systems which would be inaccessible without simulation (Resnick, 1994). In an even more consequential domain, teaching adolescent females about sexual health and sexual decision-making using interactive video that allows them to simulate real sexual decisions has been shown to be more effective than more traditional means of education in reducing the occurrence of sexually transmitted diseases (Downs et al., 2004): This

simulation of risky situations is not only not hampered by the lack of reality, it is in fact only *possible* with such technology (see Fogg, 2003). In another domain, technological interventions designed to improve group-decision making attempt to *disrupt* normal face-to-face social interaction in an effort to improve performance (Norton, DiMicco, Caneel, & Ariely, 2005; see Kiesler & Sproull, 1992). In short, while the tendency among designers is to make life online increasingly like life offline, there are benefits of life online that cannot be reproduced offline. Virtual Dates serve as a bridge between life online and off, capturing some of the elements of both that lead to more positive outcomes.

Conclusion

Most online dating sites use a “shopping” interface like that used by other commercial sites, in which commodities – users – are classified by different attributes (e.g., height, weight, income) which can be parsed and sorted in any way the shopper desires (see Bellman, Johnson, Lohse, & Mandel, 2006). We have suggested that the disappointment that online daters experience is related to the mismatch between this model and the kinds of information about and experiences with potential partners people need to find a match. Indeed, this model is outdated even when compared with some sites that offer consumer products. Garments that are striking on a website may fail to live up to expectations when they arrive in the mail and one discovers the item simply does not fit. As a result, some sites have attempted to improve the odds of finding a good match by simulating the offline shopping experience by making online shopping more interactive (see Alba et al., 1997). With My Virtual Model, for example, consumers create an online model of their body which they then use to test how those garments might look when

they try them on at home (Nantel, 2004, and see Klein, 2003). Virtual Dates constitute an effort to bring these strategies to online dating, allowing people to try each other on to see whether they fit with each other, simulating their lives together before they ever meet.

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Footnote

1. Due to the time constraints of the speed-dating session, not all participants completed the dependent measures.

Author Note

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Figure 1. Timeline of events (Study 3).

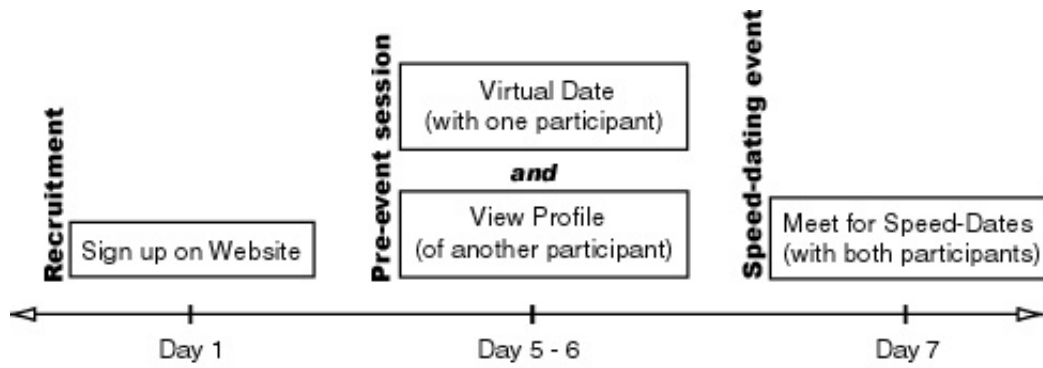


Figure 2. Screenshot of Virtual Date interface (Study 3). This view shows one segment of the chat room with two users, one in blue, Fred, with a visible utterance and one in brown, Lily, without one. The text box, where users type messages, is at the bottom of the screen.

