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The impact of emotionality and self-disclosure on online dating versus traditional dating

Larry D. Rosen [a,*], Nancy A. Cheever [b],
Cheyenne Cummings [a], Julie Felt [a]

[a] *Department of Psychology, California State University, Dominguez Hills,
1000 E. Victoria Street, Carson, CA 90747, USA*
[b] *Department of Communications, California State University, Dominguez Hills,
1000 E. Victoria Street, Carson, CA 90747, USA*

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Abstract

Online dating is unique in the pursuit of romance. The bond created between potential partners takes a different path than normal dating relationships. Online dating usually begins with a flurry of e-mail messages, each more intimate than the last. Traditional dating relationships that might take months to develop in the real world, take weeks or even days online. Much has been written about cyber-dating, but little research has been done. This series of four studies examines the online dating process, similarities and differences between online and traditional dating, and the impact of emotionality and self-disclosure on first (e-mail) impressions of a potential partner. Results indicate that the amount of emotionality and self-disclosure affected a person's perception of a potential partner. An e-mail with strong emotional words (e.g., excited, wonderful) led to more positive impressions than an e-mail with fewer strong emotional words (e.g., happy, fine) and resulted in nearly three out of four subjects selecting the e-mailer with strong emotional words for the fictitious dater of the opposite sex. Results for self-disclosure e-mails were complex, but indicate that levels of self-disclosure led to different impressions. Low levels of self-disclosure were generally preferred in choosing for the fictitious dater, although these preferences differed by gender, education, and ethnic background. Results were discussed in terms of theories of computer-mediated communication.
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* Corresponding author. Tel.: +1 310 243 3427; fax: +1 619 342 1699.
  E-mail address: lrosen@csudh.edu (L.D. Rosen).

1. Introduction

Online dating is a major Internet business. It is estimated that there are 836 dating sites as of January 2005, which is a 37% increase in the past year (Hitwise.com, 2005). Jupiter-Research says online dating revenue hit $473 million in 2004, up from $396 million in 2003. In 4 years, revenue has gone from $50 million to $500 million. In 2003 online dating, revenues accounted for about one-half percent of all online transactions. In January 2005, they accounted for nearly 1% (Hitwise.com, 2005).

Recent estimates have indicated that 40 million Americans visit online dating services monthly and that 25% of singles have tried one (Online Dating Magazine, 2004d). Online dating has become so mainstream that in summer 2005 ABC aired a well-received, five-part documentary on online dating called *Hooking Up*.

A survey by AvantGo (2004) found that 14% of singles were dating, married to, or engaged to someone they met online. Gavin, Duffield, and Scott (2005) also reported that online dating appeared to be successful in that 94% of their subjects reported that their relationship continued after the first date for an average of nearly 8 months. Published success stories are rampant. Match.com (Online Dating Magazine, 2004a), for example, reports that based on surveys of members who have cancelled their subscriptions, over 200,000 of their users have found a partner. An eHarmony Harris Interactive research study (eHarmony, 2006) recently reported that 33,000 members got married in a 12-month period ending August 31, 2005 which works out to 90 marriages per day.

A recent study of 3215 adults by the Pew Internet and American Life Project (Madden & Lenhart, 2006) estimated that out of 10 million Internet users who are single and looking for a partner, 74% have used the Internet to help find one. Overall, the Pew study estimated that 11% of Internet-using adults had gone to an online dating site and that one-third of American adults know someone who has used online dating. Further, this study found that 15% of American adults know someone who has either been in a long-term relationship or married someone he or she met online. A study by Burmaster (2005) of 3400 adults in the United Kingdom found that one in three Internet users would opt to go online to meet a potential dating partner and that the Internet is the third most popular means of getting a date following meeting someone through friends and meeting someone at a club or pub. The Nielsen//NetRatings study also found that the majority of online daters are looking for friendship (46%) or a long-term relationship (45%). Finally, a GMI (2006) poll of 17,502 online consumers found that internationally, 23% had gone online to develop a long-term relationship and 10% had used online dating to find a marriage partner. Further, 48% of those in the large sample knew someone who had used online dating and 39% knew someone who had formed a significant relationship through online dating. Clearly, these major studies indicate that online dating has reached mainstream Internet usage.

The Pew study also found that the majority of online adults do not feel that people who use online dating services are desperate. Others, however, have found a stigma attached to online dating (Wildermuth, 2004). Overall, research has shown that online daters are more confident than offline daters (Online Dating Magazine, 2004b), and that online daters are getting married faster with 72% marrying within the first year compared to 36% of offline daters.

Online dating sites are all similarly structured. Participants provide a photograph and answer an array of questions including geographic location, age, weight or body type,

education level, income, and other relevant demographics. In addition, most sites allow participants to write several paragraphs describing themselves. Some sites require the participant to answer a psychological assessment so they can be matched to potential dates. Site costs range from $10 to more than $50 per month.

Surveys by iMatchup (Online Dating Magazine, 2003) and eHarmony (Online Dating Magazine, 2004c) have shown that photos are the most important part of a profile. The Nielsen//NetRatings study (Burmaster, 2005) concurred, finding the way someone looked in a photo the number one reason for contacting them, followed by their description, hobbies and interests, and age. In fact, Hirsch, Hortacsu, and Ariely (2006) found that men with photos are viewed four times more and women six times more than those without photos. iMatchup's survey of 1000 of its members found that after a photo, self-descriptive paragraphs, geographic location, age, race, religion, and income were the most important pieces of information. eHarmony's survey of its members found that the top 10 characteristics that men wanted in a woman were ''sense of humor'', ''strong character'', ''responsible'', ''emotionally healthy'', ''affection'', ''good communicator'', ''good family life'', ''chemistry'', ''loyalty'', and ''kindness''. Women wanted ''affection'', ''sense of humor'', ''chemistry'', ''emotionally healthy'', ''good communicator'', ''strong character'', ''loyalty'', ''passion'', ''kindness'', and ''good family life'' (Online Dating Magazine, 2004). Finally, Bartling, LeDoux, and Thrasher (2005) found that men desired affection, humor, honesty, openness, and attractiveness in women while women desired humor, honesty, caring, openness, and personality.

The process of online dating is quite different from traditional offline dating. Traditional dating most often begins with spatial proximity and physical attractiveness, followed by an investigation of similarities and interests and then personal self-disclosure. Dating usually begins once a week and may accelerate after a time of ''getting to know you''. In contrast, online dating usually begins with a flurry of e-mail messages back and forth with early self-disclosure by both parties.

Once this intimate relationship has been established the process of meeting face-to-face begins. McKenna, Green, and Gleason (2002) found support for their model showing that e-mailing or online chatting led to phone calls, which finally led to meeting live. In addition, Gavin et al. (2005) found that the more offline communication channels used prior to meeting (e.g., telephone, letters) the higher the levels of depth, interdependence and commitment in the relationship.

In one of the earliest studies, Parks and Floyd (1996) studied online relationships developed through newsgroups. Querying 176 Usenet newsgroup users, Parks and Floyd found that 61% had formed relationships, and 55% had formed relationships with the opposite sex. Only 8% had formed romantic relationships. Just 2 years later, Parks and Roberts (1998) studied MOOs (Multi-User Object-Oriented games) where real-time, synchronous interactions among game players, and game builders took place. They found that 94% of the players formed at least one ongoing relationship and 26% had developed romantic relationships. Utz (2000), studying103 MUD (Multi-User Dimensions) users, found 77% reported forming relationships with other users. A *New Woman* magazine survey (Jenner, 2000 as quoted in Joinson (2001)) found that 24% of their subjects formed romantic relationships on the web and 75% became ''proper relationships''.

Since the beginning of online interaction, the study of computer-mediated communication (CMC) has been a major topic of interest. In a world devoid of most of the cues found

in normal face-to-face communication, researchers questioned just what could be communicated through writing-based systems.

In their study of newsgroups, McKenna et al. (2002) found that those who better expressed their "true self" (their inner feelings) were more likely to have formed close online relationships. Linking "true self" and self-disclosure, McKenna et al. observed that self-disclosure lead to an increase in intimacy and that only after liking and trust were established could an online relationship be formed. McKenna et al. predicted that with more self-disclosure online relationships would develop faster and be more stable than offline relationships. In their field study, in fact, they found that the vast majority of online relationships were still intact two years later in the same proportions that others had found for offline relationships. In addition, they found in a laboratory study that students liked each other more when meeting the first time online versus face-to-face and that assessment remained stable even after meeting live.

In a set of experiments, Bargh, McKenna, and Fitzsimmons (2002) concurred that students were not only better at expressing their "true self" over the Internet than in person but the true self was also more accessible in memory during online interactions and the "actual self" (the one shown outwardly to other people) was more accessible during face-to-face interactions. Knox, Daniels, Sturdivant, and Zusman (2001) found that anxiety reduction played a major role in meeting new people online and allowing the true self to emerge.

Several researchers have examined peoples' assessment of their online communication partner's personality through words alone. Gill and Oberlander (2003) found that people, through an initial, single "zero-acquaintance" e-mail message could reliably infer the author's level of extraversion from the text alone. Lea and Spears (1992) studied paralanguage as a function of the lack of clues in written messages. Paralanguage is defined as all of the additional non-verbal cues that a person receives when "conversing" with another. This includes body language, facial expressions, etc. In an e-mail environment, devoid of any of the physical cues, non-verbal cues are proffered through other means such as writing style, emotions, capitalization, etc. Lea and Spears found readers' attributions of personality traits could be gleaned from paralanguage cues even when communicating via e-mail and that people will use whatever cues are available to infer personality.

1.1. Self-disclosure

"Self-disclosure is an act of revealing personal information about oneself to others" (Archer, 1980, p. 183). Self-disclosure means letting go of anxiety and apprehension of losing someone due to knowing someone more intimately; when relationships reach this stage they become more intimate (Wysocki, 1996, 1998; Merkle & Richardson, 2000; McKenna et al., 2002). When people meet someone in a face-to-face setting, they are usually very cautious about revealing too much about themselves. At the beginning of a face-to-face relationship, they spend time telling the other what they like to do, what they do for a living and how they like to spend their leisure time. Only after establishing a measure of trust do people then start to reveal more about themselves including their deepest inner feelings (Bargh et al., 2002). When people meet online they tend to reveal much more about themselves immediately in the first few e-mails (Wallace, 1999; Parks & Floyd, 1996). In a study of 133 posted tales sharing good and bad times on the Internet, Rosson (1999) observed that "users seem to be quite comfortable revealing personal – even quite intimate – details

about their lives in the very public forum" (p. 8). Moon (2000) even found that even having a computer "introduce itself" by giving its name and being personable led to more self-disclosure. In corroboration, Joinson (2001) found that having written personal information about the experimenter led to more self-disclosure.

Joinson (1998) defined disinhibition as "any behavior that is characterized by an apparent reduction in concerns for self-presentation and the judgment of others" (p. 4). In essence, it is what people do or say online that they would not do offline. In his work, Joinson reports studies that show more intimate details are offered online stating they are "self-regulated and responding in tune with their innermost thoughts, attitudes, and goals" (p. 13).

Ben-Ze-ev (2003), in his book, *Love Online: Emotions on the Internet*, stated that cyberspace provides a private world in which the information that is revealed about a person is essentially the information each person wants to reveal. Ben-Ze-ev claims that online self-disclosure is more prevalent because people feel safer in cyberspace than in actual space. He maintains that shame, which is the most powerful moral emotion, is less common in cyberspace, although it is not completely absent from that space.

Easy self-disclosure would seem to be the antithesis of the impersonal world of electronic communication devoid of nearly all cues used to infer feelings from others. However, rather than impersonal, Walther (1996) describes this world as "hyperpersonal" where one feels anonymous, distant, and safe. In fact, Walther claims many people feel closer to those on the other side of the screen than they do to the people who they are with in real life. Perhaps nobody has better captured these feelings than did Sherry Turkle in her classic 1995 book, *Life on the Screen: Identity in the Age of the Internet* in which she documents how people online blur the distinction between real-life (RL) and screen life (SL) and often feel more comfortable with his SL friends than his RL friends.

In a recent study, Joinson (2004) had pairs discuss dilemmas. In Study 1, he compared face-to-face discussions to online discussions. In Study 2, he compared visually anonymous discussions against those including a concurrent video link. In Study 1, Joinson found that online discussions led to more than four times the amount of self-disclosure and in Study 2 he found that visual anonymity led to nearly five times more self-disclosure. Clearly, hiding behind the screen promotes self-revealing thoughts even in non-romantic settings. In fact, Buchanan et al. (2002) attempted to reduce self-disclosure by providing a warning about the lack of security on the Internet while asking extremely personal questions and found only a slight reduction.

Joinson (2004) found that when chances of rejection increase, people choose to move the conversation to e-mail from face-to-face. In addition, in this study, those subjects with low self-esteem showed a decided preference for e-mail compared to high self-esteem subjects. Those with high self-esteem expected more positive outcomes from their face-to-face interaction and felt no need to move online.

2. Computer-mediated communication theories

An early theory of CMC, the Social Information Processing Theory (SIP) (Walther, 1992) asserted that people were not thwarted by lack of cues available online. Walther claimed that people adapt to the medium to gain information to develop impressions and can do so based on message content, style, and timing. Walther (1993) found that

online groups' interpersonal impressions were slower to form than offline groups' but the depth was the same if given time. Walther asserted that

> CMC partners exchanged propoportionally more self-disclosures and questions than did face-to-face partners. Moreover, the questions they asked were about more personal topics than those the face-to-face partners exchanged. At the same time, the deeper the disclosures and questions used by partners in CMC, the more effective they were rated by their partners, in comparison to those who met in FtF discussions (Walther, 1993, pp. 147–148).

Walther (1994) studied CMC and face-to-face groups. Half were told they were going to work on multiple projects over time while the other half were told they were only going to work once. Those who anticipated continued interaction had more positive relational communication.

In addition, Walther and Tidwell (1995) varied time stamps on pairs of messages which they called chronemic codes. They found that the amount of affection ascribed to a message was an interaction between the time it was sent, the content of the message and promptness of reply. Subjects felt most affectionate when they received a quick reply to a task message during the day and felt least affectionate if the prompt response was to a nighttime task message. If the reply was slow to either message they felt only moderate affection. Tidwell and Walther (2002) studied dyads using CMC or face-to-face communication in making someone's acquaintance or performing a decision-making task. They found that CMC led to more self-disclosure and questions and that it also led to deeper questions. They interpreted this result to indicate that according to SIP, when using CMC people make use of whatever cues they have to acquire information about a person.

Walther (1996) introduced the theory he called the Hyperpersonal Perspective in which users make overattributions about their online partners. When people expect future interactions they infer perceived similarity by "filling in the blanks" in desirable ways in developing impressions of a partner. Then, the reciprocal influences of this idealized perception and selective presentation creates self-confirming prophecies, which lead to more intimacy. In support, Walther, Slovacek, and Tidwell (2001) presented messages with text alone or with photographs to dyadic pairs. Pairs who expected only short-term interaction showed more intimacy with a photo but long-term partners showed less intimacy. The most affinity was found among long-term partners who never saw each other. The short-term partners with no picture were the least positive, while the long-term partners with no picture were the most positive. Walther et al. (2001) inferred that having no photograph led to greater familiarity and more affection.

Another theoretical approach, Social Identity/Deindividuation Theory (SIDE) has been applied to explain interaction in computer-mediated groups (Lea & Spears, 1992) SIDE theory predicts that CMC users overinterpret information from group communication. When they find similarity and common norms this leads to greater attraction to the group and its members. Although SIDE theory makes no predictions about individuals communicating online, it does help explain the variables that might lead to more self-disclosure and greater online attraction.

The prevailing theories make differential predictions concerning mixed mode relationships, those that start online and then move offline. A strict SIP interpretation suggests very little impact or value of additional face-to-face-based information once a virtual rela-

tionship is formed. If one can truly get to know another online, physical appearance or other data that might uniquely become apparent when meeting face-to-face should be superfluous to impressions and relationships (Walther & Parks, 2002). To this end, Baker (1998, 2002) also showed that her online daters discounted the impact of photographs. In contrast, SIDE predicts that when an online communicator sees someone offline for the first time it undermines social attraction. Finally, the Hyperpersonal Perspective predicts that once two people meet, physical attractiveness is important due to having projected positive impressions based on the written word and perhaps on one or more photographs. Walther and Parks (2002) referred to this as involving "cues filtered in and cues filtered out" (p. 1).

This series of four studies was designed with several purposes. First, the studies assessed information about the behavior of online daters. Second, the studies examined similarities and differences between online daters and traditional daters. It was hypothesized that online daters would use online communication tools more than traditional daters would; that they would be more accepting of technology; and that they would be more open to online friendships. Third, the first two studies examined how level of emotionality in an initial e-mail from a man to a woman affects impression formation. It was hypothesized that a man sending an e-mail using highly emotional words would be rated more positively than one using moderate emotional words and would be selected as a better dating partner. Fourth, Studies 3 and 4 investigated how the level of self-disclosure in an initial e-mail from a man to a woman (Study 3), or a woman to a man (Study 4) affects impression formation. It was hypothesized that an e-mail with more self-disclosure would be more attractive and seen as more positive. The four studies were completed within 19 months. Study 2 followed Study 1 by 7 months, Study 3 followed by another 5 months and Study 4 by another 7 months.

3. Study 1 method

3.1. Participants

One thousand and twenty-nine adult subjects were recruited from the Los Angeles area by students in a junior and senior level university course. Of these, 53% were females and 47% were males. Participant ages were as follows: under 25 (54%), 26–29 (13%), 30–39 (15%), 40–49 (11%), 50–59 (6%), and 60 and older (2%). Participants represented an ethnic distribution that was similar to multi-cultural Southern California: African-American (21%), Asian/Pacific Islander (11%), Caucasian (25%), Hispanic/Latino (34%), and Other (8%).

3.2. Materials

The survey instrument consisted of five sections. The first section assessed the above demographics. The second section examined the participant's use of various communication technologies focusing on their use of e-mail. The third section queried their experience, and the experience of their friends, with online dating. The fourth section presented two fictitious e-mail messages from a woman seeking an online relationship. In each fictitious e-mail, "Jenny123" wrote the following to Jim789 and FrankXYZ, and then received the attached responses:

From: Jenny123   To: JimJ789
Hi Jim/Frank. I read your profile and I am interested in hearing more about you.
Please e-mail back when you get a chance.

From: JimJ789   To: Jenny123
Hi Jenny. I am 35 years old and manage a shoe store with 12 employees. I love my
job and find that the time goes quickly. When I am not working I read exciting nov-
els and travel. Travel excites me since it allows me to see places and people that I
read about. I feel like I have a fantastic life with friends, a good job and wonderful
hobbies. I am looking for a woman to share my terrific life. Are you that person?
Please tell me more about you.

From: FrankXYZ   To: Jenny123
Hello Jenny, Well, I am in my mid-30s. I have a 9 to 5 job as a manager at a men's
clothing store at the mall. I would say that I am satisfied with my job. After 5:00 I get
to spend time doing what I want. Usually I choose to watch movies, most of which I
find to be good. I also like to travel. After I go on a vacation I feel very content that I
have done something I like. I like my life and enjoy being with my friends. I am look-
ing for someone who would be pleased to join me in my life. Are you that person?
Please tell me more about you.

The "content" of the two messages was kept constant, but the emotionality of six words
was varied. Jim's words were rated as conveying strong feelings while Frank's conveyed
moderate to mild feelings. For example, when referring to their jobs, Jim said he "loved"
his job while Frank was "satisfied" with his job (for the complete list see Hammond, Hep-
worth, & Smith, 1977).

Immediately after reading each e-mail exchange participants circled which of 18 adjec-
tives (e.g., cheerful, bold, determined) that they felt described Jim and Frank. Adjectives
were selected from the PANAS (Positive and Negative Affect Schedule) and PANAS-X
scales (Watson, Clark, & Tellegen, 1988; Watson & Clark, 1994) although the format
was altered from a Likert scale rating to a simple selection. Next, participants rated
how positive they felt Jenny would feel about the e-mails and following both e-mails they
indicated who Jenny should choose and why.

Finally, participants were asked: Which of the following best describes your feelings
about technology? It included the following answer choices: "I am eager and one of the
first to try new technology"; "I am willing to try new technology only after it has been
tested and proven"; "I would rather wait until I need to use the new technology"; "I would
rather wait until I am required to use the new technology"; and "I am not willing to use
new technology".

3.3. Procedure

Each student in the course selected 10 adults and presented the questions in an inter-
view format. For open-ended questions, participants were encouraged to supply complete
answers.

4. Results

4.1. E-mail usage

Table 1 displays information about the use of e-mail. As the table shows, participants used e-mail extensively. Comparisons in e-mail usage by gender, age, and ethnic background revealed only three significant differences. For age, mean years using e-mail differed significantly, $F(4,921) = 15.39$, $p < .001$ with the youngest group (18–25) using e-mail for fewer years than all other age groups. For ethnic background, years using e-mail differed significantly, $F(3,837) = 13.03$, $p < .001$. Tukey's HSD test showed that Hispanic/Latino ($M = 4.66$ years) and African–Americans ($M = 5.19$) had used e-mail for fewer years than Asian/Pacific Islanders ($M = 5.86$) and Caucasians ($M = 6.03$). Finally, Tukey's HSD test also showed that Asian/Pacific Islanders ($M = 2.56$) had significantly more e-mail accounts than Caucasians ($M = 2.00$); Hispanic/Latinos ($M = 2.11$) and African Americans ($M = 2.11$) did not differ significantly from either Asian/Pacific Islanders or Caucasians, $F(3,837) = 3.88$, $p = .009$.

4.2. Online dating usage

Overall, 41% of the participants knew someone who had used an online dating service. Of those, 55% felt that their friends' experiences had been positive, while 26% felt they had

Table 1
Electronic mail usage

Question	Mean (SD)/percentage
Mean years using e-mail	5.38 (2.77)
Mean e-mail accounts	2.19 (1.69)
Hours per day using e-mail	
Less than 1 h/day	48%
1–2 h/day	33%
3–5 h/day	13%
6–8 h/day	4%
More than 8 h/day	2%
E-mail messages received per day	
1–5	21%
6–10	22%
11–20	23%
21–30	12%
31–50	8%
51–100	6%
Over 100	7%
E-mail messages sent per day	
1–5	67%
6–10	16%
11–20	8%
21–30	4%
31–50	2%
51–100	2%
Over 100	0%

Table 2
Likelihood of online and traditional daters using an online dating service in the future

Daters	Very likely	Somewhat likely	Neither likely nor unlikely	Somewhat unlikely	Very unlikely
Online daters	26%	25%	14%	8%	28%
Traditional daters	2%	7%	13%	11%	68%

Note: $\chi^2(4) = 181.30$, $p < .001$.

been neutral and only 19% rated them as negative. In terms of their personal use, 11% of the participants had used an online dating service with 37% rating it as a positive experience, 39% as a neutral experience and 24% as a negative experience. Participants were then asked how likely they were to use an online dating service. Online daters were found to be more likely to use a service compared to traditional daters, $\chi^2(4) = 181.30$, $p < .001$. Table 2 displays these results. Online and traditional daters were compared on all demographics and no significant differences were found. In addition, online daters and traditional daters had been using e-mail for the same length of time, had the same average number of e-mail accounts and received the same number of e-mails per day. However, online daters spent significantly more hours per day using e-mail and sent significantly more e-mails per day.

4.3. Assessment of Jim and Frank: The impact of emotionality

Table 3 shows that there were no differences in the ratings and choice between men for online and traditional daters. In addition, there were no significant differences in ratings or choice by any demographic. There was, however, a significant difference in the number of adjectives selected for Jim ($M = 5.52$; SD = 3.18) and Frank ($M = 3.67$; SD = 2.41), $t(1028) = 22.63$, $p < .001$. Table 4 displays each adjective compared between Jim and Frank while Table 5 presents the comparison of selected adjective descriptors for between groups.

It is clear from the data in Table 4 that with the exception of only one adjective (attentive), Jim and Frank differed significantly on the percentage of participants who circled all remaining adjectives. In order from largest percentage of adjectives selected, Jim was seen as more confident, happy, enthusiastic, cheerful, energetic, excited, interesting, proud, determined, strong, bold, and daring. In contrast, despite having significantly fewer

Table 3
Online and traditional daters ratings of Jim and Frank and final choice

Ratings/Choice	Online daters	Traditional daters	χ^2 Test
Ratings of Jim			
Positive	70%	75%	$\chi^2(2) = 1.66$, $p = .437$
Neutral	18%	16%	
Negative	12%	9%	
Ratings of Frank			
Positive	47%	48%	$\chi^2(2) = 0.07$, $p = .965$
Neutral	34%	34%	
Negative	19%	19%	
Choice			
Jim	71%	73%	$\chi^2(1) = 0.19$, $p = .67$
Frank	29%	27%	

Table 4
Comparison of adjectives chosen for Jim and Frank

Adjectives	Jim	Frank	Z Test
At ease	19%	40%	10.45[***]
Attentive	17%	16%	0.61
Bold	17%	10%	4.65[***]
Calm	17%	53%	17.12[***]
Cheerful	48%	13%	17.24[***]
Confident	62%	23%	17.89[***]
Daring	16%	8%	5.58[***]
Determined	27%	11%	9.25[***]
Energetic	48%	9%	19.60[***]
Enthusiastic	52%	9%	21.18[***]
Excited	45%	10%	17.78[***]
Happy	56%	25%	14.32[***]
Interested	47%	29%	7.07[***]
Nervous	4%	0%	11.17[***]
Proud	43%	12%	15.75[***]
Relaxed	19%	42%	11.33[***]
Shy	3%	7%	15.24[***]
Strong	18%	11%	4.55[***]

[*] $p < .05$; [**] $p < .01$; [***] $p < .001$.

adjectives selected, Frank was seen as more calm, relaxed, at ease, shy, and nervous. Further, from Table 5 it is also clear that there are only four significant differences between online daters and traditional daters and all are within the selected adjectives describing Jim. Online daters found Jim to be less enthusiastic, more nervous, less relaxed, and shyer than traditional daters.

4.4. Reasons for selection

After making their choice of man for Jenny, participants were asked why she should make that choice. The major reasons for selecting Jim were fun/outgoing (36%), pleasant/relaxed (26%), established (22%), and interesting (16%). The primary reasons given for selecting Frank were pleasant/relaxed (40%), truthful/realistic (37%), and not too excited (23%).

4.5. Feelings toward technology

Participants were asked about their general feeling toward technology. Table 6 displays those results and shows that the online daters were more eager to try new technology than the traditional daters.

5. Study 2

Study 2 provided a replication of Study 1, using samples of online daters and traditional daters to compare the impact of emotionality on impression formation. In addition, Study 2 examined factors that were considered important in potential dates and online dating experiences.

Table 5
Comparison of online and traditional daters on descriptor adjectives for Jim and Frank

Adjectives	Online daters	Traditional daters	χ^2 Test
Jim			
At ease	20%	19%	$p = .76$
Attentive	19%	17%	$p = .61$
Bold	14%	17%	$p = .42$
Calm	17%	18%	$p = .83$
Cheerful	50%	48%	$p = .66$
Confident	58%	62%	$p = .34$
Daring	19%	15%	$p = .31$
Determined	26%	26%	$p = .98$
Energetic	44%	48%	$p = .44$
Enthusiastic	42%	54%	$p = .02^*$
Excited	39%	45%	$p = .20$
Happy	54%	56%	$p = .53$
Interested	35%	45%	$p = .06$
Nervous	10%	3%	$p < .001^{***}$
Proud	43%	43%	$p = .92$
Relaxed	9%	21%	$p = .006^{**}$
Shy	7%	3%	$p = .022^*$
Strong	18%	18%	$p = .95$
Frank			
At ease	33%	41%	$p = .10$
Attentive	19%	16%	$p = .45$
Bold	7%	10%	$p = .24$
Calm	52%	53%	$p = .83$
Cheerful	11%	13%	$p = .63$
Confident	26%	23%	$p = .62$
Daring	11%	7%	$p = .10$
Determined	9%	12%	$p = .35$
Energetic	11%	9%	$p = .40$
Enthusiastic	9%	9%	$p = .84$
Excited	8%	11%	$p = .32$
Happy	26%	24%	$p = .77$
Interested	28%	30%	$p = .73$
Nervous	16%	21%	$p = .27$
Proud	12%	12%	$p = .85$
Relaxed	45%	42%	$p = .53$
Shy	31%	26%	$p = .30$
Strong	10%	11%	$p = .85$

[*] $p < .05$.
[**] $p < .01$.
[***] $p < .001$.

6. Method

6.1. Participants

One thousand three hundred and seventy-nine adult subjects were recruited from the Los Angeles area by students in a junior and senior level university course. Of these, 417 were online daters and 962 were traditional daters. Demographic data indicated significant differences in age ($\chi^2(6) = 14.70$, $p = .023$) and ethnic background

Table 6
Feelings about technology for online and traditional daters

Feelings about technology	Online daters	Traditional daters
I am eager and one of the first to try new technology	42%	27%
I am willing to try new technology only after it has been tested and proven	31%	42%
I would rather wait until I need to use the new technology	19%	22%
I would rather wait until I am required to use the new technology	9%	8%
I am not willing to use new technology	0%	0%

Note: $\chi^2(4) = 11.44$, $p = .022$.

($\chi^2(4) = 10.47$, $p = .033$). Overall, the data show demographic differences between the groups with the online daters being slightly younger and more likely to be Caucasian and Asian. Other than these differences, the distributions of gender (male = 43%, female = 57%), age (18–25 = 65%, 26–29 = 12%, 30–35 = 9%, 36–40 = 6%, 41–50 = 5%, 51–60 = 2%, over 60 = <1%), and ethnic background (Asian = 12%, Black/African-American = 26%, Caucasian = 21%, Hispanic/Latino = 36%, and Other = 5%) were similar to that of Study 1.

6.2. Materials

Separate interview forms were used for the two groups. Each consisted of four sections. The first section of both assessed the above demographics. The second section examined the importance of 21 qualities in a potential date on a 4-point Likert scale including very important, somewhat important, somewhat unimportant and very unimportant. The third section differed between the two groups. The traditional dating group was asked about their dating experiences, their knowledge of acquaintances who have used online dating, the number of friends (not romantic) they had made online, a rating of how well they felt they could get to know someone online without meeting the person, and their feelings about technology. Online daters were asked about their online dating experiences, their online dating style, the online dating experiences of friends, the number of friends (not romantic) they had made online, a rating of how well they felt they could get to know someone online without meeting the person and their feelings about technology. The fourth section presented the same two fictitious e-mail messages as used in Study 1.

6.3. Procedure

Each student in the course selected 10 adults, three who used online dating and seven who did not, and presented the questions in an interview format. For open-ended questions, participants were encouraged to supply complete answers.

7. Results

7.1. Dating experiences

Traditional daters had relatively positive dating experiences with 29% very positive, 39% somewhat positive, 22% neither positive nor negative, 8% somewhat negative, and

Table 7
Comparison between groups on making friends online

Survey item	Online daters	Traditional daters	Statistical test
Online friends (not romantic)			
None	16%	63%	$\chi^2(5) = 309.05$, $p < .001$
1–2	22%	18%	
3–5	26%	10%	
6–10	15%	5%	
11–20	11%	2%	
More than 20	11%	3%	
How well can you get to know someone online without meeting?[a]			
Mean	5.82	3.75	$t(1357) = 14.91$, $p < .001$
SD	2.31	2.38	

[a] Rating scale from 1 to 10 with 1 being "not at all" to 10 being "very much."

3% very negative. Traditional daters were asked how many people they knew who had used online dating services. Overall, they knew a mean of 3.42 people (Median = 2.00). They were also asked to assess the experience of "the person they know best" with 20% answering very positive, 36% somewhat positive, 25% neither positive nor negative, 10% somewhat negative, and only 9% very negative. These ratings did not differ significantly from their own dating experiences, $\chi^2(16) = 24.43$, $p = .081$.

Both groups were asked about friend relationships online as well as their feelings toward technology. The data are displayed in Table 7. Clearly online daters have made more friends online and also feel like they can get to know someone online without meeting them.

Online daters were asked a series of questions concerning their online dating experiences and behaviors. These are cataloged in the left column of Table 8. First, it is clear that the online dating sample shows a range of daters who started either recently or several years ago and who have used the service from a few months to years. Typical online daters will read about 11 profiles per session and about half will read a profile without a picture. There are clearly two major communication styles – either send many e-mails before moving on or send a few e-mails and then talk on the telephone. Daters vary widely in the percentage of e-mails received to which they respond, and overall only 29% have found a serious relationship using online dating.

7.2. Important qualities

Each participant rated the importance of 21 qualities on a 4-point Likert scale. Table 9 displays the mean ratings (lower means indicate more importance) and comparisons of the two groups. The qualities are ranked in order of most important to least important for the online daters. First, it is important to note that although online daters showed a higher mean rating (1.96), it was not significantly different from the traditional dater rating (1.90); $t(1226) = 2.60$, $p = .10$.

Second, of the 21 characteristics 14 showed significant differences and in all but two of those online daters rated the characteristic as less important than traditional daters. Interestingly, traditional daters felt that "communicates about his/her looks" and "compares self to a celebrity" were less important than online daters did. Perhaps this is because these

Table 8
Online daters' experiences and behaviors

Experience/Behavior	Percentage/mean	
	Study 2	Study 3
When did you start using online dating?		
Within past 6 months	24%	26%
6 months to 1 year ago	25%	23%
1–2 years ago	23%	19%
More than 2 years ago	28%	32%
How long have you used it?		
Less than 3 months	26%	19%
3–6 months	21%	27%
6 months to 1 year	20%	21%
1–2 years	14%	15%
More than 2 years	19%	18%
In a typical session, how many profiles do you read?	11.28 (SD = 18.91)	11.27 (SD = 19.52)
Will read a profile without a picture	48%	44%
Which is your preferred style?		
Send many e-mails before moving on	37%	29%
Send a few e-mails and then talk live	49%	55%
Send a few e-mails and then meet	10%	11%
Meet immediately	4%	5%
What % of e-mails do you respond to?		
Less than 25%	30%	30%
25–50%	28%	35%
50–75%	23%	22%
75–100%	19%	13%
Found a serious relationship online	29%	31%
Do you tell your family and friends that you are dating online?[a]		
All of them	–	7%
Most of them	–	22%
A select few of them	–	50%
None of them	–	22%
What kind of relationship are you looking for online?[a]		
Long-term dating	–	29%
Marriage	–	14%
Friendship	–	27%
Fling	–	14%
One-night stand	–	5%
Other	–	11%
What are the three most important parts of a profile for you?[a]		
Age	–	61%
Picture	–	60%
Weight/Body type	–	32%
Smoking/Drinking habits	–	29%
Education	–	25%
Employment/Income	–	21%
Children	–	18%
Ethnic background	–	15%
Religion	–	14%

Table 8 (*continued*)

Experience/Behavior	Percentage/mean	
	Study 2	Study 3
Height	–	10%
Past marriage	–	10%

[a] This question was asked only in Study 3.

are the only two characteristics that are "unseen" during online communication so writing about them becomes more important than during traditional dating. It is also important to note that these two were rated the two least important by traditional daters and least and fourth least by online daters. Finally, as seen in Table 9, the order of characteristics was similar for both groups, Spearman Rho = .90, $p < .001$. In her interview study of couples who met online, Baker (1998, 2002) found that sense of humor, response time, interests, and qualities described online and writing style were the most important characteristics that led to their relationship success. There were similar qualities to those noted for online daters in Table 9.

The 21 characteristics were factor analyzed to determine underlying themes. Factor analysis found five factors with eigenvalues greater than 1.00 accounting for 53% of the variance. The items in each factor are listed in Table 10. Factor 1 is clearly dealing with revealing information about oneself. Factor 2 concerns communication, while Factor 3

Table 9
Comparison between groups on importance of rated qualities

Characteristics	Online daters	Traditional daters	*t* Test
	(order of importance)		
Sense of humor	1.40(1)	1.26(1)	4.04[***]
Asks questions about you	1.47(2)	1.51(4)	−1.04
Enthusiastic	1.54(3)	1.56(5)	−0.50
Confidence	1.55(4)	1.35(2)	5.49[***]
Cheerfulness	1.62(5)	1.47(3)	4.31[***]
Responds quickly to e-mail/calls	1.68(6)	1.67(8)	0.21
Communicates about personal qualities	1.75(7)	1.80(12)	−1.08
Communicates about likes and dislikes	1.78(8)	1.64(7)	3.30[**]
Eagerness to meet	1.92(9)	1.70(10)	4.72[***]
Communicates about his/her education	1.97(10)	1.75(11)	4.73[***]
Eager to talk on the telephone	1.98(11)	2.07(16)	−1.76
Communicates about future plans	2.00(12)	1.59(6)	8.64[***]
Communicates about personal history	2.03(13)	1.87(14)	3.20[**]
Communicates about family	2.04(14)	1.69(9)	7.30[***]
Communicates about accomplishments	2.04(15)	1.86(13)	3.87[***]
Proper use of language	2.05(16)	1.94(15)	2.01[*]
Communicates about job	2.10(17)	2.12(18)	−0.36
Communicates about his/her looks	2.18(18)	3.01(20)	−15.90[***]
Communicates about spirituality	2.26(19)	2.10(17)	2.60[*]
Communicates with long e-mails/phone calls	2.48(20)	2.17(19)	5.87[***]
Compares self to a celebrity	3.32(21)	3.61(21)	−6.23[***]

Lower scores reflect more important qualities.
Note: "Communicates" refers to writing in an e-mail for online daters and talking for traditional daters.

Table 10
Factor loadings >.40 for important dating characteristics

Characteristics	Factors				
	1	2	3	4	5
1. Sense of humor			.65		
2. Asks questions about you[a]					
3. Enthusiastic			.66		
4. Confidence			.55		
5. Cheerfulness			.65		
6. Responds quickly to e-mail/calls		.59			
7. Communicates about personal qualities	.71				
8. Communicates about likes and dislikes	.63				
9. Eagerness to meet		.44	.44		
10. Communicates about his/her education				.61	
11. Eager to talk on the telephone		.82			
12. Communicates about future plans		.41		.40	
13. Communicates about personal history	.70				
14. Communicates about family	.72				
15. Communicates about accomplishments	.60				
16. Proper use of language				.67	
17. Communicates about job	.56				
18. Communicates about his/her looks					.82
19. Communicates about spirituality	.56				
20. Communicates with long e-mails/phone calls		.76			
21. Compares self to a celebrity					.78

Note: "Communicates" refers to writing in an e-mail for online daters and talking for traditional daters.
[a] Did not load on any factors.

presents personality characteristics. Factor 4 concerns education and Factor 5 concerns physical appearance. When each factor was compared, online daters rated Factors 1 through 4 as less important while rating the physical appearance factor as more important than traditional daters.

7.3. Frank vs. Jim: The impact of emotionality

As in Study 1, daters assessed Jenny's two potential dates, Frank and Jim. Results were identical to those in Study 1.

7.4. Feelings toward technology

As in Study 1, participants were asked about their feelings toward technology. Again, online daters were more eager about new technology than traditional daters, $\chi^2(4) = 36.46$, $p < .001$.

8. Study 3

Study 3 again compared online and traditional daters, but in this study the impact of self-disclosure on impression formation was assessed through fictitious e-mail messages from three men to a woman.

9. Method

9.1. Participants

One thousand one hundred and seven adult subjects were recruited from the Los Angeles area by students in a junior and senior level university course. Of these, 451 were online daters and 656 were traditional daters. Demographic data indicated significant differences in ethnic background ($\chi^2(4) = 11.06$, $p = .026$) and age ($\chi^2(4) = 10.37$, $p = .035$) with older subjects more likely to be dating online and with more Caucasian and Asian online daters than traditional daters. The distributions of gender (male = 44%, female = 56%), age (18–25 = 61%, 26–29 = 18%, 30–35 = 9%, 36–40 = 5%, 41–50 = 5%, 51–60 = 1%, over 60 = <1%), and ethnic background (Asian = 9%, Black/African-American = 30%, Caucasian = 19%, Hispanic/Latino = 38% and Other = 5%) were similar to that of Studies 1 and 2. Additional demographic data indicated that 69% of the sample were single and had never been married. Finally, 13% had a high school degree or less, 52% had some college and 34% had a college degree.

9.2. Materials

Separate interview forms were used for the two groups, each consisting of four sections. The first section of both assessed the above demographics. The second section examined the importance of 17 qualities in a potential date on a 4-point Likert scale including "very important", "somewhat important", "somewhat unimportant", and "very unimportant". The third section differed between the two groups. The traditional dating group was asked about their dating experiences, their knowledge of acquaintances who have used online dating, the number of friends (not romantic) they had made online, a rating of how well they felt they could get to know someone online without meeting the person, and their feelings about technology. Online daters were asked about their online dating experiences, their online dating style, the number of friends (not romantic) they had made online, a rating of how well they felt they could get to know someone online without meeting the person, and their feelings about technology. The fourth section presented three fictitious e-mail messages from a woman seeking an online relationship which differed only in level of self-disclosure. In each fictitious e-mail, SusanP wrote the following to Mark999, Robert123 and EdwardGG and received the following responses:

From: SusanP   To: Mark999

Hi Mark (or Robert or Edward). I read your profile and I am interested in hearing more about you. Please e-mail back when you get a chance.

From: Mark999 To: SusanP

Hi Susan, I have a very good job as a Vice-President of finance for a mid-size pharmaceutical company. It is a 9 to 5 job and it pays well enough to allow me to do all

the things that I like to do. At 35, that is important to me. I like to ski, watch sports and go to the movies. I really like anything outdoors. I have a few really good friends and like to spend time with them when we all can work it out. Sometimes, we just hang around but often we go out and get into a pickup basketball game at the park. It's great exercise and I really feel good after I play.

Personally, I have been in one long-term relationship but never married. We met in college and stayed together for almost three years. However, when I decided to get an MBA and had to study constantly she got very upset. It affected all parts of our life together. We would argue about everything and quite honestly I didn't like it. She really didn't seem to understand my life goals. It also affected our sex life. She no longer seemed to want to make love and when we did it was not very tender at all. I felt pretty upset as we had planned a future together. So that is me in a nutshell. What about you?

From: Robert123 To: SusanP
Hi Susan, at the ripe old age of 31 I am the top manager for a very successful business making airplane parts. I love my work. It's fun and challenging and I feel that I get a lot of emotional satisfaction out of it. Sometimes after work I go to the gym and work out. It really helps me feel so much more alive and also helps tone up my body. That's important to me. I also like sports. I am up for most any sport although I prefer basketball and touch football. On the weekend I like to relax, have fun and maybe go out to a movie. I really like movies about relationships although I do enjoy a good thriller, too.

I am not married and have no children. I did date a woman for two and a half years awhile back but I was very unhappy that we were not emotionally closer. I was simply more positive and more willing to talk about my goals and feelings. She was more closed off. For example, I would tell her that I was lonely and she would change the topic. We were good in the beginning and were affectionate. We would kiss for hours (I am a passionate person). As you may be able to tell, I have no trouble talking about my feelings. Anyway, tell me your deepest darkest secrets. I look forward to hearing from you.

From: EdwardGG To: SusanP

Hi Susan, I am 32 years old and an attorney. I practice corporate law and really like what I do. It is fun and challenging. Every day brings something new and that makes the days go by quickly. I am tall and slender and exercise regularly. I like movies, particularly those that talk about sports and intrigue. I am happiest when I have enough time to do all the things that I like to do. On the weekends I love to work out and then maybe take in a movie. I have lots of friends and we like hanging out together. I even play a little softball in a local league. All in all, I like where I am in life.

> I was married once and quite honestly it was a mistake from the beginning. We really had nothing in common and could not make it work. We stayed married for two years but the last year was rather difficult. We did not talk much and mostly stayed out of each other's way. Finally, we realized that we could not make it work and got the divorce. We are not friends but we are not angry at each other. It simply did not work. Other than that, I think that I am a pretty even keel guy. I like what I saw in your profile and would like to talk more. Are you interested?

The "content" of the three messages was kept constant with the number of words in each paragraph matched, the professions matched for relative income as closely as possible and the emotionality matched for tone. The three vignettes differed in the level of self-disclosure. Initially, the level of self-disclosure was assessed by a panel of raters who determined that Edward showed the least self-disclosure followed by Mark and then Robert with the highest level of self-disclosure.

Immediately after reading each e-mail participants circled which of 16 adjectives (e.g., cheerful, bold, determined) that they felt described Mark, Robert, and Edward. Adjectives were selected from the PANAS and PANAS-X scales (Watson et al., 1988; Watson & Clark, 1994) although the format was altered from a Likert scale rating to a simple selection. One adjective, "sharing" was included to assess the self-disclosure manipulation. Next, participants rated how positive they felt Susan would feel about the e-mailer and following both e-mails they indicated who Susan should choose and why.

An initial assessment demonstrated that Robert was indeed perceived to be the most "sharing" with this adjective circled by 50% of the subjects, followed by Mark (46%) and Edward (36%). Interestingly, for traditional daters the differences were larger (Robert = 52%, Mark = 44%, Edward = 35%) and for online daters they were smaller with Mark and Robert tied at 48% followed by Edward at 38%.

9.3. Procedure

Each student in the course selected 10 adults, four who used online dating and six who did not, and presented the questions in an interview format. For open-ended questions, participants were encouraged to supply complete answers.

10. Results

10.1. Dating Experiences

Subjects were asked about their dating experiences and traditional daters were asked about the experience of the one online dater they knew the best. Traditional daters knew a mean of 2.01 online daters (Median = 1.00). Overall, traditional daters had significantly more positive experiences than online daters ($\chi^2(4) = 46.38$, $p < .001$) and they also had more positive experiences than their online dating friends ($\chi^2(4) = 26.17$, $p < .001$). However, online daters had significantly more positive experiences than the online dater rated by the traditional daters ($\chi^2(4) = 15.77$, $p < .01$).

Similar to Study 2, online daters knew significantly more people online ($\chi^2(5) = 317.37$, $p < .001$) and felt that they could get to know someone online without meeting them better than traditional daters ($t(942) = 12.31$, $p < .001$).

10.2. Online dating experiences

Online daters were asked similar questions about their online dating experiences as in Study 2. Those data are displayed in right column of Table 7. As can be seen, the dating experiences of the two samples, taken 7 months apart are fairly consistent.

Several items were added to the Study 3 survey instrument and these responses are displayed in Table 8. First, it is clear that the majority of people only tell a few of their friends and family that they are dating online. Those more likely to tell people are those who have been dating longer ($\chi^2(8) = 16.82$, $p < .05$), have found a serious relationship ($\chi^2(2) = 30.14$, $p < .001$), and those who have had a more positive dating experience ($\chi^2(4) = 19.65$, $p < .01$). Demographically, those more likely to tell include females ($\chi^2(2) = 8.52$, $p = .014$), older ($\chi^2(6) = 15.14$, $p = .019$), and more educated ($\chi^2(4) = 9.74$, $p = .045$). In addition, Asian daters were less likely to tell about their online dating ($\chi^2(2) = 6.18$, $p = .045$).

Second, as seen in Table 8, online daters are seeking a variety of relationships with the top choices split between long-term dating and friendship. When formal relationships (dating, marriage) are compared with casual relationships (friendship, flings, one-night stands) several differences emerge. Those seeking more formal relationships include women ($\chi^2(1) = 22.43$, $p < .001$) and older daters ($\chi^2(3) = 8.82$, $p = .032$).

Third, Table 8 shows the most important profile characteristics that determine which people to initiate correspondence with are age and photographs followed by weight/body type, smoking and drinking habits and education. For the two major factors, photographs were more important to males (67%) than females (55%) ($\chi^2(1) = 6.96$, $p = .008$) and age was more important to daters with some college (college degree = 52%; some college = 67%; high school degree or less = 61%; $\chi^2(2) = 9.74$, $p = .008$).

10.3. Important qualities

Once again subjects rated the importance of qualities in a potential date. Using 17 qualities, most identical to those in Study 2, the same results were found. Again, five factors were derived and comparisons show that traditional daters indicated that revealing information and personality were more important, while online daters indicated that communication and appearance were more important.

10.4. Self-disclosure

Mark, Robert, and Edward wrote e-mail messages to Susan in varying levels of self-disclosure. First, for each gentleman, the 16 adjectives were subjected to a factor analysis. Five factors were derived and were identical for Mark, Robert, and Edward. The first factor was labeled Being Positive (cheerful, enthusiastic, happy, and excited); Factor 2 was Being Open (honest, sincere, open, and sharing); Factor 3 was labeled Strength (strong, proud, gold, and determined); Factor 4 was Calmness (relaxed and calm); and Factor 5 was Shyness (shy and nervous). Online daters and traditional daters agreed on 43 of the 48 adjectives (16 for each). The only disagreements were that the online daters found Mark to be more honest, less proud, less determined, and more nervous and also found Edward to be more open. Due to these similarities, Table 11 displays the percentage of subjects selecting specific adjectives for the three e-mailers averaged across both groups. Significant

Table 11
Selected adjectives for three levels of self-disclosure (SD)

Adjectives	Robert (high SD)	Mark (moderate SD)	Edward (low SD)	χ^2 score
Being positive				
Cheerful	25%[a]	17%[a]	22%	12.20[**]
Enthusiastic	26%[a]	22%	20%	7.89[*]
Happy	24%	18%[a]	27%[a]	16.59[***]
Excited	21%[a]	11%[a]	12%[a]	40.16[***]
Being open				
Honest	47%[a]	61%[a]	50%	19.94[***]
Sincere	33%	37%	37%	2.94
Open	64%	70%[a]	49%[a]	33.74[***]
Sharing	51%[a]	46%	36%[a]	21.92[***]
Strength				
Strong	22%[a]	24%	32%[a]	17.98[***]
Proud	26%	28%	23%	5.36
Bold	26%	24%	19%[a]	10.70[**]
Determined	24%[a]	39%[a]	28%	38.68[***]
Calmness				
Relaxed	24%	17%[a]	28%[a]	24.71[***]
Calm	17%[a]	16%[a]	27%[a]	35.97[***]
Shyness				
Shy	5%	2%[a]	6%	12.98[**]
Nervous	8%	7%	10%	3.99

[a] Significant contributor to χ^2 test using standardized residual test (Hays, 1994).
[*] $p < .05$.
[**] $p < .01$.
[***] $p < .001$.

differences are indicated in the table using Hays' (1994) assessment of significant standardized residuals.

The data in Table 11 paint an interesting picture of the three gentlemen. In general, Robert is seen as the most positive followed by Edward and then Mark although Edward and Robert are viewed as similarly cheerful and happy. Mark is seen as the most open and Edward is seen as the least open. This again corroborates the self-disclosure manipulation although subjects perceived both Robert and Mark, the high and moderate self-disclosers, as equally sincere and sharing. In terms of shyness, Robert and Edward are seen as more shy than Mark.

Two categories, strength and calmness are less clear. Mark appears to be seen as more determined, while Robert and Mark are proud and bold and Edward is the strongest. In addition, Robert and Edward are seen as more relaxed and Edward seen as the most calm.

10.5. Susan's choice

The top line of Table 12 shows information about who Susan should choose, indicating that significantly more people chose Edward, the least self-disclosing and fewer chose Mark, the moderate self-discloser. The remainder of Table 12 shows comparison of choice by dating groups and ethnic background. All other demographic variables showed no sig-

Table 12
Susan's choice by group and demographics (SD = Self-disclosure)

Group	Robert (high SD)	Mark (moderate SD)	Edward (low SD)	χ^2 score
Overall choice	33%	29%[a]	38%[a]	10.96[**]
Dating group				
Online daters	30%	29%	41%	3.40
Traditional daters	36%	29%	36%	
Ethnic background				
Asian/Pacific Isl.	39%	21%	40%	17.35[***]
Black/Af-Amer	31%	36%	32%	
Caucasian	32%	22%[a]	47%[a]	
Hispanic	34%	31%	35%	

[a] Significant contributor to χ^2 test using standardized residual test (Hays, 1994).
[*] $p < .05$.
[**] $p < .01$.
[***] $p < .001$.

nificant differences in choice. First, online daters and traditional daters agreed on Susan's choice although there is a trend for more online daters to select Edward (lowest self-disclosure) and for more traditional daters to select Robert (most self-disclosure). Second, it appears from Table 12 that Asian subjects preferred either Edward or Robert while Caucasian's preferred Edward. Black and Hispanic subjects were evenly split among the three choices.

A Discriminant Function Analysis was performed using demographic variables (including dummy variables for ethnic background) and dating group to discriminate between the choice of Robert, Mark, and Edward. Two functions were significant ($\chi^2(18) = 35.65$, $p = .008$). Using these two functions, the three choices generate correct classifications 41% of the time. Mark was classified correctly 51% of the time, followed by Edward (44%) and Robert (28%). Interestingly, Robert, the highest self-discloser, was more often misclassified as Edward and Mark. Table 13 displays the F-tests for each discriminating variable, beta weights and structural coefficients for these classifications. From the F-tests,

Table 13
Discriminant function analysis results in Study 3

Variables	F-test	Beta weight[a]		Structure coefficient	
		Fn 1	Fn 2	Fn 1	Fn 2
Group	1.89	.08	−.70	.15	−.68
Gender	0.42	.01	.24	.13	.21
Age	1.86	−.31	.15	−.34	.24
Education	3.68[**]	−.34	.26	−.48	.29
Marital status	0.65	.28	.13	.19	.17
Asian	1.64	.29	−.44	−.53	−.53
Black	4.93[**]	1.16	.34	.56	.28
Caucasian	4.60[*]	.25	.19	−.56	.14
Hispanic	0.78	.93	.20	.23	−.03

[*] $p < .05$; [**] $p < .01$; [***] $p < .001$.
[a] Standardized canonical discriminant function coefficients.

it can be seen that education plays a role in the choice with further analysis demonstrating that those with more education were more likely to choose Edward. Those with no college education actually slightly preferred Robert (37%) over Mark and Edward (31% each). Those with some college preferred Edward (36%) and those with a college degree were most in favor of Susan choosing Edward (44%). The other significant difference in choice was due to ethnic background, which was shown in Table 12.

From the data in Table 13, it is apparent that Function 1, which maximally discriminated Mark and Edward, and Function 2, which separated Robert from Mark and Edward, were primarily weighted by education and ethnic background.

11. Study 4

Study 4 included only online daters and assessed the online dating process as well as the impact of self-disclosure on impression formation based on fictitious e-mails from three women to a man.

12. Method

12.1. Participants

Seven hundred fifty-nine adult subjects were recruited from the Los Angeles area in the same manner as in the first two studies with the stipulation that they had tried online dating. The sample was split nearly equally into those who were currently using online dating (48%) and those who had used a service in the past and were no longer doing so (52%). Demographic composition of this sample were similar to the earlier studies in gender (53% female), age (18–25 = 55%, 26–29 = 16%, 30–35 = 11%, 36–40 = 7%, 41–50 = 7%, 51–60 = 3%, over 60 = 1%), ethnic background (Asian/Pacific Islander = 11%, Black/African-American = 20%, Caucasian = 29%, Hispanic/Spanish Descent = 31%, Other = 9%), education (high school degree or less = 15%, some college = 47%, college degree = 38%) and marital status (71% single and never married). Those who were still using online dating did not differ from those who were not except that significantly more of those still dating were single and never married.

12.2. Materials

The survey included four sections: (1) demographic data, (2) online dating experiences including a series of items designed to ascertain the process of online dating, (3) attitudes toward traditional and online dating, and (4) three fictitious e-mail messages from a man seeking an online relationship with a woman which differed only in level of self-disclosure. The fictitious e-mail messages were nearly identical to those in Study 3 with two exceptions. First, the names were changed so that three women, Jennifer, Kim, and Fran, were writing a message to Grant. Second, in Study 3, subjects were asked why they made their selection between Mark, Robert, and Edward. Out of more than 1000 subjects, less than 50 indicated that they did not select Edward because he was divorced. Thus, the low self-disclosing woman's e-mail was modified to remove divorce. Finally, where necessary, messages were modified slightly to reflect the change in gender. These changes were cosmetic and did not change the amount of self-disclo-

sure in the e-mail messages. After reading the e-mail messages, subjects assessed, in their opinion, which of the three women were most honest, cheerful, sharing, shy, proud, strong, calm, nervous, and open. Finally, subjects were asked, "If Grant could only pursue one of these women, who should it be?"

12.3. Procedure

The survey was posted on an online web survey site and participants were given the link to that site. All answers were anonymous.

13. Results

13.1. Online dating experiences, process and attitudes

Table 14 indicates answers to questions involving how adults make use of dating services. The data in this table show several aspects of online dating. First, online daters tend to contact more than one person at a time. Second, the majority of e-mail messages sent are not answered. Third, as expected by the salience of appearance noted in Study 2, the majority of online daters require a photograph before initial contact and multiple photographs are desired. Fourth, as seen in the first two studies, there is no standard process of proceeding from e-mail to meeting someone in person, varying from quickly to e-mailing for months prior to meeting. Fifth, just as in traditional dating, "chemistry" is the major determiner in not pursuing a second date and chemistry plus other factors are important in deciding to ask for a second date. Sixth, personality tests are seen as neither accurate nor inaccurate. Seventh, as seen in Study 2, online daters are hesitant to tell anyone other than their best friends that they are embarking on online dating, reinforcing the stigma that may be attached to this new form of connecting.

There were differences between those who stopped and those still using online dating. Retired online daters contacted fewer people at the same time; had fewer first and second dates; had more second dates due to chemistry, finding the person interesting and having similar interests; had less positive attitudes toward personality tests; and were less likely to tell people they were using online dating.

Table 15 displays attitudes toward online dating. In general, online daters view online dating and traditional dating on a par. They agree that relationships online develop faster, and that it is easier to get to know someone, to be honest, and to talk about personal things online. Online daters disagree that it is acceptable to search for a relationship while currently in one and also disagree that online daters are desperate. Finally, 73% of online daters agree that they would recommend online dating to others. Each attitude question was analyzed via multiple regression to determine predictors of various attitudes. Not surprisingly, whether a person was currently using online dating predicted all attitude items with "retired" online daters more negative. The only other significant predictors concerned gender: more women than men felt online dating was better than traditional dating, more women disagreed that it was acceptable to pursue an online relationship while currently in another relationship, more women disagreed that online daters are desperate, and women were less likely to recommend online dating than men.

Table 14
Online dating process and experiences in Study 4

Question	Percentage
When you first started online dating how many people	
Did you attempt to contact at the same time?	
One at a time	32
2–5 at a time	52
6–10 at a time	11
More than 10 at a time	6
What percentage of people would return your initial e-mail?	
Less than 10%	15
10–25%	21
25–50%	24
50–75%	21
Over 75%	19
When someone e-mailed you, what percentage would you e-mail back?	
Less than 10%	17
10–25%	20
25–50%	24
50–75%	22
Over 75%	17
How important is it to you to have a photograph of a person before you attempt to e-mail them?	
Won't contact without a photograph	52
Would contact but ask the person to send one first	17
Would contact but ask for one after a few e-mails	22
Don't really care if there is a photograph at all	9
How important is it to you to have multiple photographs of a person?	
Very important	30
Somewhat important	41
Somewhat unimportant	19
Very unimportant	11
How long did you typically wait from the time you first started e-mailing someone to deciding to meet?	
Less than a week	16
1–2 weeks	23
2 weeks to 1 month	28
1–2 months	11
More than 2 months	22
Over the time you have been using online dating, how many first dates have you had?	
None	21
1–2	34
3–5	25
6 or more	20
If you only had one date with someone why did you choose to not pursue a second date (multiple responses allowed)?	
No connection or chemistry	63
Person did not match the personality in their profile	37
Person did not match their picture	32
Person lied about something they told me or I read	23
The person was not as I expected	22
The person lived too far away	21

Table 14 (*continued*)

Question	Percentage
Person did not match personality in their e-mails	21
I wanted a one-night stand and the person did not	8
Over the time you have been using online dating, how many second dates have you had?	
None	23
1–2	40
3–5	25
6 or more	12
If you chose to have a second date, what were the likely reasons? (multiple responses allowed)	
Good chemistry – we just clicked	62
I found the person interesting	56
The person was fun	55
I liked the way the person looked	52
We had similar interests	50
The person was a good conversationalist	48
Taken compatibility test	30
What did you think of the test results? (multiple responses allowed)	
Very accurate about my personality	17
Somewhat accurate about my personality	62
Not accurate at all about my personality	8
Very accurate for the person I was interested in	7
Somewhat accurate for the person I was interested in	35
Not at all accurate for the person I was interested in	7
A waste of my time because the test was too long	9
The test was fun to take	30
When you first started online dating who did you tell? (multiple responses)	
My best friends	51
My close family	13
Most of my family members	3
Anyone who asked	18
I did not tell anyone when I first started	36

13.2. Self-disclosure

Table 16 displays how online daters assessed self-disclosure in women. All Chi-square tests showed significant differences in impressions formed. Additional analyses of standardized residuals are shown in this table and indicate which level(s) of self-disclosure were considered to contribute significantly to the significant Chi-square test (Hays, 1994). First, as a manipulation check, online daters validated that the more self-disclosing the woman the more open and sharing she was viewed. Second, impressions were formed based on level of self-disclosure in a two-paragraph e-mail message. Those who self-disclose more are seen as more cheerful, less shy, less strong, less calm, more nervous, more sharing, and more open. Interestingly, those who self-disclose most or least were seen as least proud. Third, and most important, online daters had a clear preference for the woman who disclosed the least. However, this preference was even stronger than that of the online daters for self-disclosing men.

A Discriminant Function Analysis of the choice indicated that demographic variables (age, gender, ethnic background, marital status, and whether the subject was still using

Table 15
Online dating attitudes in Study 4

Question	Percentage
How does online dating compare with traditional dating?	
Online dating is much better	15
Online dating is a little better	30
Traditional dating is a little better	33
Traditional dating is much better	21
How would you rate your online dating experiences?	
Very positive	21
Somewhat positive	55
Somewhat negative	19
Very negative	6
How would you rate your traditional dating experiences?	
Very positive	26
Somewhat positive	56
Somewhat negative	14
Very negative	4
Online dating relationships develop faster than traditional relationships	
Strongly agree	20
Somewhat agree	49
Somewhat disagree	24
Strongly disagree	8
It is easier to get to know someone online before dating them.	
Strongly agree	25
Somewhat agree	49
Somewhat disagree	18
Strongly disagree	7
It is easier to be honest with someone you are talking to online.	
Strongly agree	25
Somewhat agree	39
Somewhat disagree	23
Strongly disagree	12
It is easier to talk about "personal things" with people online.	
Strongly agree	25
Somewhat agree	43
Somewhat disagree	22
Strongly disagree	10
It is acceptable to search for an online relationship while currently in one.	
Strongly agree	8
Somewhat agree	16
Somewhat disagree	18
Strongly disagree	58
Online daters are desperate	
Strongly agree	11
Somewhat agree	24
Somewhat disagree	30
Strongly disagree	34

Table 15 (*continued*)

Question	Percentage
I would recommend online dating to other people	
Strongly agree	26
Somewhat agree	47
Somewhat disagree	20
Strongly disagree	8

Table 16
Adjective descriptors for three levels of self-disclosure (SD) in Study 4

Adjectives	Kim (high SD)	Jennifer (moderate SD)	Fran (low SD)	χ^2 score
Most honest	29%	33%	38%[a]	7.49[*]
Most cheerful	40%[a]	27%[a]	33%	18.09[***]
Most sharing	43%[a]	36%	21%[a]	56.73[***]
Most shy	23%[a]	30%	47%[a]	69.48[***]
Most proud	30%	47%[a]	23%[a]	66.72[***]
Most strong	27%[a]	36%	38%[a]	16.30[***]
Most calm	25%[a]	21%[a]	54%[a]	135.78[***]
Most nervous	35%	38%	27%[a]	12.72[*]
Most open	47%[a]	37%	16%[a]	105.13[***]
CHOICE	32%	21%[a]	48%[a]	79.66[***]

[*] $p < .05$; [**] $p < .01$; [***] $p < .001$.
[a] Significant contributor to χ^2 test using standardized residual test (Hays, 1994).

online dating) produced a significant difference between the three levels of self-disclosure (test of functions 1 through 2: $\chi^2(18) = 68.90$, $p < .001$). An examination of the group centroids indicated that Function 1 separated the high and moderate self-disclosers from the low self-discloser and Function 2 separates the moderate and high self-disclosers. Table 17 displays the results of this analysis. The left column of this table indicates that: (1) females showed a decided preference for the low self-discloser (57%) over the moderate (21%) and high (32%) self-disclosers while males showed a slight preference for the high self-discloser (39%) over the low (37%) and moderate (25%) ones; (2) subjects with some college or a college degree preferred the low self-discloser (55% and 47%, respectively) while subjects with only no college education preferred the high self-discloser (46%); (3) single, never married subjects favored the low self-discloser slightly less (45%) than those who fit all other marital categories (54%); and (4) Black subjects actually preferred the high self-discloser slightly more (42%) than the low self-discloser (37%) and no other ethnic differences were significant. The far right two columns of Table 17 demonstrate that the most important discriminators in choosing between self-disclosers (moderate and high) and low self-disclosers were gender and education, while gender and marital status assisted in discriminating between the high and moderate self-disclosers.

14. Discussion

Four studies were performed to examine online dating habits, provide a comparison of online and traditional daters and examine the impact of emotionality and self-disclosure on impression formation. Results showed that the number of people dating online is

Table 17
Discriminant function analysis results in Study 4

Variables	*F* test	Beta weight[a]		Structure coefficient	
		Fn 1	Fn 2	Fn 1	Fn 2
Gender	15.26***	−.62	.60	−.66	.57
Age	2.12	.07	.22	−.25	−.18
Education	13.91***	−.56	−.26	−.64	−.29
Marital status	3.68*	.14	.67	.29	.55
Asian	0.18	.36	.52	.05	.17
Black	5.02**	.64	.48	.39	.08
Caucasian	1.23	.43	.43	−.18	−.24
Hispanic	0.32	.43	.69	−.03	.32
Still dating online	1.15	−.17	.13	−.18	.11

[a] Standardized canonical discriminant function coefficients.
* $p < .05$.
** $p < .01$.
*** $p < .001$.

increasing, as evidenced by the 7-month increase from 41% to 69% of traditional daters knowing someone dating online. By the end of one year between Study 1 and Study 3, traditional daters knew one to two people using online dating. In addition, online daters typically had similar positive experiences as traditional daters. Online daters were clearly more positive about technology itself, had more online friends, and were more positive about making friends online.

Online daters displayed a variety of dating preferences and experiences. Perhaps most interesting is that about 1 in 3 had found a serious relationship and their process was either one of sending many e-mails or just sending a few e-mails and talking on the telephone before meeting. Online daters felt that a person's age and photograph were paramount, although half were willing to consider contacting someone without a photograph in their profile. Interestingly, the majority of online daters were hesitant to tell others what they were doing.

Online daters and traditional daters differed on what characteristics they found important in a future date. While traditional daters found personal information, personality, and education more important, online daters keyed in on communication style and physical attractiveness. It is obvious that communication is critical as that is the major mode of getting to know someone, and physical attractiveness is the one feature that is most unclear in the profile.

It is clear that emotionality and self-disclosure in written e-mail messages help form impressions of potential suitors. Jim's use of highly emotional words made him more attractive and he was seen as more positive on nearly all personality descriptors (or adjectives). Online and traditional daters agreed on this although online daters felt that his use of these charged words was suspect when considering his enthusiasm.

The data on self-disclosure was less clear, at least for men self-disclosing to a woman. It is clear that impressions were formed based on the level of self-disclosure. In general, higher self-disclosing messages were seen as reflecting a more positive and open person. However, other personality attributions were mixed and in some cases the gentleman showing the lowest self-disclosure was seen as having more strength. Overall, these attributions were constant across all demographic variables and dating styles. Interestingly,

there was a slight tendency for the online daters to prefer the person with the least self-disclosure, and the traditional daters were split between the lowest and highest self-disclosers. Finally, there was a difference in choice among ethnic groups with Asian and Caucasian subjects showing a slight preference for the lowest discloser.

The impact of self-disclosure from women to a man were quite clear with a decided preference for women who had low levels of self-disclosure, at least among the female online daters. Male online daters actually preferred both high and low self-disclosers over moderate ones. In addition, impressions were formed based on self-disclosure with all adjective descriptors showing differences between self-disclosure levels. There were also marked differences in choice by education, marital status, and ethnic background.

The data appear to shed light on several views of computer-mediated communication. First, SIP theory (Walther & Parks, 2002) predicted that getting to know someone online might make physical appearance less important. The data certainly indicated that photographs were important only to about half the online daters in initiating conversations. However, the photograph was the second most important aspect of a profile, and physical attractiveness was more important to online daters than traditional daters, indicating that this cue was important in the impression formation process. These latter results show the most support for the assertions of the Hyperpersonal Perspective (Walther, 1996) in indicating which cues are filtered in and which are filtered out. It is clear from the adjective checklists that people do indeed fill in the blanks about the personality of someone from an online e-mail message alone, lending credence to the Hyperpersonal Perspective. Further studies are needed to test whether impressions formed through electronic communication impact perceptions upon meeting live.

Overall, the results of these studies paint a picture of both online and traditional daters as people who form impressions based on the written word alone and value emotionality and moderate-to-low amounts of self-disclosure. Online daters share some characteristics with traditional daters including the qualities they look for in a potential partner. However, they are also different in the importance they place on attractiveness and communication style. Although both groups felt physical appearance was the least important quality in a potential date, online daters felt it was more important than traditional daters perhaps because online, this information was limited to only the posted photographs while traditional daters got to see the person live. Online daters also felt that communication style was more important than did traditional daters, which makes sense given that the primary mode of gathering information for online daters is via written communication.

Perhaps the most interesting results centered on the issue of self-disclosure. In Studies 3 and 4 levels of self-disclosure varied by information revealed in an initial e-mail from a male to a female and from a female to a male. Personality impressions varied with most adjectives showing differences between men and women. However, these differences were not particularly consistent for self-disclosing men. Although openness was seen as related to the amount of self-disclosure, the qualities of "being positive", "strength", "calmness", and "shyness" differed. The highest self-disclosing male was seen as the most positive but the moderate self-discloser was viewed as the least positive. In addition, the highest and lowest self-disclosers were seen as more shy than the moderate self-discloser. Finally, the strength qualities showed the lowest self-discloser as the strongest, least bold and least determined and the calmness qualities showed the lowest self-discloser to be more relaxed and calm. Overall, self-disclosure by males leads to a complex picture of impression formation.

Self-disclosure by females, however, much more consistently affected impression formation and choice. Women more highly valued lower self-disclosing females, while males preferred both high and low self-disclosing females. All adjective descriptors showed preferences with differences by gender, education, marital status, and ethnic background. Despite these differences, it was clear that self-disclosure by women is perceived differently than self-disclosure by men.

14.1. Limitations

In the first study subjects were selected only on the basis of being currently dating. In the second and third studies, participants were selected separately as having dated online or traditionally. In the fourth study, they had all tried online dating with half still doing so. In the first three studies, the subjects themselves were selected and interviewed by students and as such may have been biased in reporting about their dating. In Study 4, interviews were conducted at an online website so answers were completely private and confidential.

Second, the four samples were mostly female (55%), young (74% under 30 years old), and college educated (86% had at least attended college). Although few population statistics are available, DatingResearch.com (2004) reported the match.com members were primarily male (60%), over 30 (54%), and had attended college (79%). If these demographics match other dating sites, this suggests that the current sample may be biased toward younger, highly educated females. However, given that age, gender, and education were analyzed statistically, places where they affected the conclusions from these studies have been indicated and discussed.

Another limitation is that all subjects were selecting a date for someone else, not themselves. This decision was made due to the clear differences in characteristics that online daters look for in a date. Perhaps future studies can vary these characteristics and have subjects make more personal choices.

Finally, online dating is a relatively new phenomenon. As such, expectations may change as it becomes more commonplace. Future studies can use similar materials to track these changes.

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