

Draft: May 16, 2007

To appear in: S. Sprecher, A. Wenzel, & J. Harvey (Eds.), *The Handbook of Relationship Initiation*. Erlbaum.

Thebusinessoflove.com:

Relationship Initiation at Internet MatchMaking Services

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Introduction

Any time a new form of communication is invented -- the penny newspaper, Morse code and the telegraph, the ham-radio, TV, or computers -- men and women find ways to use that technology to find love (Joinson, 2003). The definitive history of commercial computer matching has yet to be written, but it is known that in the 1950s, almost as soon as computers appeared, commercial matchmaking services sprang up (CBC Archives, 1957). Recognized as the first widespread computer matching service was Operation Match, which was created in the mid 1960s by Harvard students after a discussion of the evils of blind dates and mixers. They distributed thousands of questionnaires to college students at several universities and asked them to rate themselves on looks, intelligence, and other dimensions and also to indicate what they would desire in a partner on these same dimensions. In return for the completed questionnaire and a fee of three dollars, they were promised a list of compatible matches. Data were entered on punch cards and analyzed with an Avco 1790 computer (which was probably the size of a small room). According to media reports, it took the computer six weeks to generate the lists. Not surprisingly, the business failed (for a description of this experiment, see Leonhardt, 2006).

“Computer dates” were also conducted on university campuses in the 1960s and 1970s for academic research purposes. This was the heyday period for the study of interpersonal attraction in social psychology, and the focus was specifically on attraction that occurs between strangers. The bogus stranger experimental study (e.g., Byrne, 1971) was a common method used at the time to study attraction. In this method, people indicated how attracted they were to a

stranger (a “bogus” person, unbeknownst to them) after receiving information about him or her. However, social psychologists also occasionally matched previously unacquainted students and sent them on “dates” in order to determine what factors predicted attraction after initial interaction (e.g., Byrne, Ervin, & Lambert, 1970). One of the authors of this chapter (Hatfield) conducted the most well-known of these studies (e.g., Walster [Hatfield], Aronson, Abrahams, & Rottman, 1966), a dance study with incoming freshmen at the University of Minnesota. Some such studies used a computer to assist with the matching, although the help was rudimentary and on the order of generating random numbers for the matching of questionnaires. Computers at the time were still not powerful enough to do sophisticated matching based on multiple variables.

Over time, as computers became faster and more powerful, people would eventually sit in front of computers, and the high-speed Internet was created. It was not long after these technological advances that the new generation of computer matchmaking businesses was created. Match.com was the first, launched in 1995. Match.com, as well as Yahoo!Personals, two of the largest dating sites, began primarily as online personal advertisements, and “personal ads” continue today to be the primary service offered at these dating websites and many others. People post self-profiles, which include demographic information, personality descriptions, interests, and a photograph. They hope that potential eligibles will spot their posted information and want to communicate; they also browse the profiles of other members looking for possible dating prospects. Dating sites that offer this service have added many additional features over time, including key word searches to narrow the pool, ability to send pre-programmed ice breaker messages, voice and video greetings, anonymous instant messaging and e-mails, relationship advice, and personality testing. Whereas some sites, such as Match.com, are for the general population of singles, other sites target special niches of the population. There are those

designed to appeal to various age groups (HookUp.com, SilverSingles.com), political groups (ConservativeMatch.com, LiberalHearts.com), religious groups (CatholicSingles.com, Jdate.com, ChristianCafe.com, HappyBuddhist.com), and sexual orientation (GayWired.com, superEva.com). Dating sites also exist for people who possess mental and physical disabilities, unusual sexual preferences, and so forth. Even people who wish to find dates for themselves and their favorite pets can sign on to a site (DateMyPet.com). At the time this chapter was written, there may be almost 1,000 dating websites servicing the U.S. (e.g., Thompson, Zimbardo, & Hutchinson, 2005), and the technology available to create another one in an afternoon.

Whereas most dating websites are essentially an electronic version of personal advertisements, eHarmony.com (and founder, Neil Clark Warren) was the first to launch, in 2000, an alternative commercial matching website, followed by Perfectmatch.com in 2002. These sites distinguish themselves from the others by using a “scientific approach” to matching. Members complete a lengthy questionnaire, presumably based on scientific principles, and their questionnaire data are subjected to “matching algorithms” also developed based on scientific studies. For this effort and a monthly fee, members are promised a list of people who would make “perfect” or “compatible” matches. These sites have changed the online dating industry, with other major websites following suit. In 2005, Match.com launched Chemistry.com (which focuses on matching with “chemistry” in mind) and Yahoo!Personals now includes Yahoo Premier, an in-depth matching service based on a relationship test. Independent research and development firms also market products and systems for multiple dating websites. Most notably, weAttract.com has developed personality testing systems for both Match.com and Yahoo.com, and now has a scientific advisory board that includes APA Past-President, Philip Zimbardo. Other social scientists who are involved as scientific advisors at some of the major dating sites

include sociologist Pepper Schwartz (an author of this chapter) at Perfectmatch.com and anthropologist Helen Fisher (also an author in this volume) at Chemistry.com.

What scientific principles are being used to match people at the major relationship websites, such as eHarmony.com and Perfectmatch.com? How does relationship initiation through online dating websites differ from relationship initiation that occurs through more traditional ways of meeting, such as introductions from friends? Is it possible that commercial websites could help the scientific community of relationship scholars advance scientific knowledge about relationship initiation and development? These are some of the questions that our chapter will address. We will begin, however, by examining public attitudes toward online relationship initiation and a description of who is using the services and why.

Because online matching is relatively new, not much published, peer-review research on the topic exists. Clearly, dating websites have developed faster than research agendas to investigate them. In order to write this chapter and review the process of relationship initiation at online matching services, it was necessary to draw upon other sources of information including online Internet reports, media accounts, and information provided on the matchmaking websites.

Attitudes about Relationship Initiation at Internet Matching Services

Only anecdotal evidence exists as to the public's attitudes toward Internet dating and Internet matching services when such online services first burst upon the scene in the mid to late 1990s. The general public impression, reflected and perpetuated in newspaper accounts at the time, was generally negative. The people who used the services were assumed to be "lonely" and "desperate," and attention focused on those who lied about their marital status or gender and on cases of sexual predators who used the Internet to prey on innocent victims. Such negative

media reports have continued to appear (e.g., Kleinfeld, 2003; as reported in Albright, 2007), although media has also extolled the virtues of Internet dating.

More recently, research has been conducted on attitudes toward online dating, primarily with small convenience samples of young adults. Even though men and women in such samples are generally Internet-experienced, their attitudes about online dating have been found to be more unfavorable than favorable. For example, Donn and Sherman (2002) conducted two studies examining college students' attitudes about online relationship formation. In Study 1, participants responded to several attitude statements about relationships formed over Internet (e.g., "I would trust that the information people gave me about themselves over Internet was true."). The sample overall was negative about online dating. For example, the participants indicated that they would worry that people on the Internet would not tell the truth, they were concerned about their safety when meeting someone online, and they generally thought it would take longer to get to know someone online than in person. In Study 2, the authors manipulated the level of information participants received about matching services (brief written description vs. exposure by reviewing two matching websites) and found that greater exposure was associated with more positive (or less negative) attitudes. They also found that students with more frequent Internet usage had more favorable attitudes toward online dating.

Similar findings emerged in another survey study conducted with college students. Anderson (2005) asked the participants the degree to which it was right versus wrong, positive versus negative, and acceptable versus unacceptable for someone to enter into an online romantic relationship. Once again, the respondents had somewhat negative attitudes toward such "dating." However, greater Internet affinity, more time on the Internet, and being *less* romantic

(as assessed on the Sprecher and Metts [1989] Romanticism scale), were associated with more positive attitudes.

In the research described above, the participants were relatively young and in college, and therefore likely to be surrounded by potential mates. Most had no prior exposure to matching services. A recent large-scale, national study assessed the attitudes of individuals across several ages, and included a subgroup of online daters. The Pew Internet and American Life project, a non-profit research center that monitors the social effects of Internet on Americans, conducted telephone interviews with a national representative sample of 3,215 adults, from age 18 to over 65 (reported in Madden & Lenhart, 2006). Of these, 2,252 (70%) were Internet users who were asked several questions about their attitudes about online dating.

Madden and Lenhart (2006) reported that their national sample of Internet users were divided in their views about whether online dating is a good way to meet people (44% agreed and 44% disagreed). However, a greater percent (47%) agreed than disagreed (38%) with the statement, "Online dating allows people to find a better match for themselves because they get to know a lot more people." Online dating was not viewed as easier and more efficient than other ways of meeting people (only 33% agreed that it was easier). Although people no longer believe that those who engage in online dating are desperate (61% disagreed), they do still worry that online dating can be dangerous (66% agreed with this statement). The subsample of respondents in the Pew Internet project who were classified as online daters (those who had gone to an online dating website or other sites where they could meet people) were more positive about online dating overall than were non-users. For example, 79% of the online daters believed that using a dating website is a good way to meet people, and 64% agreed that online dating helps people

find a better match. In addition, those who were classified as single and looking had a more positive attitude toward dating services than did the others.

The Pew data suggest that Americans have a more positive attitude about online dating than indicated by the earlier studies conducted with college students (Anderson, 2005; Donn & Sherman, 2002). Why the difference? It could be that post-college singles are more positive than college students (perhaps because they have fewer opportunities than college students to meet others), but it could also be the attitudes about online dating have become more favorable in just a few years. The years from 2000 to 2005 experienced exponential growth in the number of visitors to dating websites (e.g., Madden & Lenhart, 2006; Thompson et al., 2005). Thus, relationship formation through dating websites has become increasingly mainstream, and correspondingly, attitudes have likely become more positive.

Although the general public may be more accepting of online dating than they were several years ago, it has also been speculated that many consumers are becoming disillusioned, perhaps after experiencing several failed attempts at matching. In a 2005 report entitled, “Consumers Are Having Second Thoughts About Online Dating,” produced at weAttract.com and authored by Thompson and his colleagues (2005), one conclusion was that customer satisfaction with online dating has dropped. However, the evidence for that conclusion was indirect and based primarily on the leveling of revenue in the matching industry and on anecdotal evidence. Computer matching sites are probably here for the long-haul. There will always be new groups of single adults who turn to the Internet after becoming disillusioned with other ways of meeting potential partners. A particular customer’s attitudes toward online dating websites, however, are likely to depend on his or her personal success in finding a mate in cyberspace.

Profile of Users

Obviously not all single adults are turning to the Internet to find a partner. It is difficult to know how many singles have subscribed to an Internet matching service in search of a partner and how they might be described demographically because the answer depends on *who* is doing the counting and *what* they are counting. The Pew Internet and American Life project survey referred to earlier (Madden & Lenhart, 2006) examined respondents' experiences with online dating. Most of the sample who were married or in a serious dating relationship had met their partners in more traditional ways (e.g., through friends, at work or at school). Only 3% of the sample reported meeting through the Internet. However, about 15% of the total sample knew of someone who has been in a long-term relationship or married someone who met the person online. Even more (31%) knew someone who had at least tried online dating sites. Of the total Internet users, 11% said they had gone to a dating website to meet people at least once (16 million people, nationally). Within the smaller sample of online adults who were currently seeking romantic partners, 37% had tried a dating website (4 million, nationally). Among these online daters, 43% (7 million, nationally) reported going on a date with people whom they had met through dating websites.

The data from the Pew National survey are not consistent with the numbers obtained from the webpages of the dating sites. In 2007, Match.com by itself indicates 15 million members, Yahoo.com has stated about 8 million, eHarmony.com about 5 million plus, Perfectmatch.com about 3 million. However, as noted by Thompson et al. (2005), when dating sites refer to "millions" they are generally referring to the cumulated subscriptions. In addition, non-Americans can be included in these totals, as can people who have joined more than one website. On the other hand, the 3% of respondents from the Pew Study who said that they were in Internet-initiated relationships also include those relationships initiated in Internet venues

other than matchmaking services, such as newgroups and online support groups (Parks & Floyd, 1996; Parks & Robert, 1998).

Is there a demographic profile that distinguishes those who visit dating websites from their peers? According to the Pew national study (Madden & Lenhart, 2006), a greater percentage of men (12%) than of women (9%) visit dating websites. The proportion of Hispanics (14%) and Blacks (13%) who are Internet daters is higher than the proportion of Whites (10%). A higher proportion of urbanites (13%) as compared to suburbanites (10%) and those from rural areas (9%) visit dating websites. Most importantly, the age group of Internet daters in the sample seems to be heavily weighted to people ages 18-29 (18%), followed by people 30-49 (11%) then ages 50-64 (6%) and over 65 (3%). In addition, the Pew study found that the online daters were more liberal on most social attitudes than the general American public and often, also other Internet users. More specifically, they found Internet daters to be less likely to define themselves as religious, less likely to believe in traditional gender roles, and more likely to try new things. Of course, the profile of users will be skewed in particular ways at the specialty sites. For example, religiosity will be higher at Christiansingles.com, and education will be more salient at TheRightStuff.com, a dating service for people at elite and Ivy League colleges and universities.

Reasons for Using Matching Services

Although there is a large number of singles in the U.S. and world-wide, only a proportion of even the most computer-savvy and love hungry of the singles turn to commercial dating sites in order to find a serious relationship, as noted in the previous section. Many factors may go into the decision to seek matchmaking assistance from an Internet commercial site, as well as into the decision about how long to remain a member of a site when a successful match does not occur.

Most likely, individuals will weigh the attractions and advantages to online matching (or conversely, the barriers to traditional ways of meeting others) against the financial costs and possible stigma of being an “online dater.”

Attraction to Online Matching.

Commercial matchmaking services are not a recent phenomenon and not limited to the Internet. Before online matching services existed there were matchmakers as well as printed personal advertisements, videodating services, singles clubs, “lonely hearts club”, singles travel clubs, and mail-order brides. Many of these alternative methods of meeting partners still exist, although they seem to have received less attention in recent years because of the increasing popularity of Internet matching services.

Several years ago, in a discussion of alternatives to traditional methods of relationship initiation, Woll and Cozby (1987) identified several barriers to traditional ways of meeting others that would motivate people to seek commercial alternatives, such as videodating services, personal advertisements, and computer dating services. One factor that they mentioned was *lack of access* to available partners. They noted that as people become older (over 30), they have an increasing difficult time meeting potential partners because they are usually removed from school settings and other locations with a large number of singles. A second barrier was *lack of time*. They wrote, “busy professionals who have many work and civic responsibilities simply do not have time to seek out others through “normal channels” (p. 72). Woll and Cozby also referred to the limited time experienced by the head of a single household raising children. People with *special needs or interests* may also turn to alternative ways of meeting others because of the difficulty of finding a partner in the more traditional ways. For example, people whose work mandates brief stays in many different countries may need online help in locating

potential dates since they will not have well established friendship or work networks. *Shyness* may also lead some people to choose an alternative method over a traditional method of meeting others, although Woll and Cozby commented that surprisingly shyness appears to play a less motivating role than one might expect.

Although Woll and Cozby (1987) based their analysis of attraction to alternative methods for meeting others primarily on studies conducted with individuals who use personal advertisements and videodating services, the same considerations likely apply also to users of online matching services. People are likely motivated to seek online matchmaking services because such services provide them with access to many eligible and available others and the process can be efficient and even begin in the convenience and privacy of one's home, day or night. As Merkle and Richardson (2000) note in a commentary about Internet dating, a person could sample scores of other potential partners via Internet matching services. The potential exists for connecting with large numbers of people, who may be spread across a large geographical region, in a relatively short period of time. Furthermore, presumably, the people with whom one connects at matching services are "available," "eligible," and interested in making a connection --- assumptions that often are less tenable for in-person meetings in diverse public settings. Given the millions of people using matching services in the early 21st Century, the potential for contacts at this stage of relationship development is enormous. Another advantage is that people who have atypical interests or possess certain stigmata (such as being HIV positive) may be likely to find a partner or at least someone to chat with online by casting a wide net.

The degree to which people are attracted to the Internet is also related to the qualities (or lack thereof) of the "singles scene" in which they are currently searching. Some people live in

geographical locations or work at jobs that make it difficult to find partners, and particularly those who share their values and interests. Among the singles who were actively looking for a partner in the Pew sample, 55% said it was difficult to meet new people and 47% said that there were very few single people nearby who they would be interested in dating (Madden & Lenhart, 2006). People in urban areas had an easier time finding potential dates and mates than did those in suburban or rural areas.

As another special attraction, Internet services provide considerable help in matching people according to age, occupation, wealth, physical looks, psychological qualities including values and attitudes, life-style preferences, and many other factors. The Internet increases one's chances of connecting with like-minded (or "like-bodied") people due to the computer's ability to rapidly sort along many dimensions. In fact, the biggest attraction to matching services may be the hope that one can obtain a soul mate, "the love of one's life," a special partner that would unlikely be found through normal channels. Many matching services promote this hope. Finding a compatible mate through an Internet matching service may be possible, although it may take time and investment. In a 2003 New York Times Article, "Online Dating Sheds Its Stigma as Losers.com," Amy Harmon describes a 33 year old woman (name replaced by X below):

"Of the 120 men she traded messages with online in her first four months of Internet dating X talked to 20 on the telephone at least once and met 11 in person. Of those X dated four several times before realizing she had not found "the one." It is one of the first lessons learned by many in the swelling ranks of subscribers to Internet dating sites: soul mates are harder to come by than dinner and a

movie. But like a growing number of single adults X remains convinced that the chances of finding her life partner are better online than off.”

Barriers

With all the potential advantages to commercial services for matching, why would not all singles who are looking for a partner choose to use the Internet to find love? Some practical barriers to finding partners in this way for at least some people are the costs involved, illiteracy in the use of computers and online services, and time investment. Costs to belonging to an online dating service can be as high as \$60 (in 2007) per month, plus the costs of owning a computer (\$500 and beyond) and subscribing to an Internet service (\$25 and up, depending on speed of Internet connection desired). These costs, however, may not be overwhelming for most, especially as compared to the costs of going to nightclubs and bars to meet others, or cruises and trips with singles groups and other elaborate ways of meeting people in-person.

There is, however, a set of more imposing social psychological barriers to the use of the Internet for connecting. In particular, there still is a stigma associated with Internet matchmaking. Some people do not want the stigma and negative stereotypes that they believe might become associated with them if they use such services (e.g., Donn & Sherman, 2002). Although the stigma is dissipating with millions of Internet users and the popularity of the Internet in television and movie portrayals (e.g., the movies “You’ve Got Mail” and “Log in for Love”), it still nonetheless affects some (recall that 29% of the Pew respondents agreed that people who engage in online dating are desperate).

Another barrier is that occasionally online searchers need to settle for matches who are at a geographical distance, which can introduce costs to the relationship. Although most online daters request that matches be within a nearby radius, those who do not live in geographical

areas with high density populations may need to expand the radius in order to have any matches. In contrast, traditionally people fell in love with the person next door (e.g., Bossard, 1932). Although it was unlikely that the person next door would have a similar score on the type of compatibility test completed at a popular Internet matching service, neither person had to travel very far to see the other, and neither had to be uprooted in order to move in together. Now, people may be connected through Internet sites with people from other states or cities (or even countries) which creates all kinds of logistic and financial challenges. The fact that these kinds of relationships require commuting to see one another can exacerbate a related barrier, that a pair formed over Internet does not have the opportunity to possess support from family and friends. Often, family and friends do not know about the developing online relationship and when they first learn about the Internet-initiated romance, they may not always be supportive (Wildermuth, 2004).

In addition, some singles may be reluctant to try online dating because they do not trust what online members post and say about themselves. Merkle and Richardson (2000) point to the anonymity of the Internet as a key issue for all parties in using this medium for communication. In particular, an abiding concern is that potential partners listing their wares on dating sites are not being honest about their marital status, current romantic involvements, the age of photos posted, their financial status, personal health, and the like. They have reason to be suspicious. Hortacsu, Hitsch, and Ariely (as reported in Levitt & Dubner, 2005) analyzed the profiles provided by 30,000 users at a dating website and compared their data with national averages. Men and women were an inch taller than the national average, and women reported a weight 20 pounds less than the national average. Most people reported themselves to be above average in looks; only 30% of users reported themselves as average in looks, and a mere 1% said they were

“less than average.” Of course, lying to get a date also occurs in face-to-face interactions (Boon & McCloud, 2001; Rowatt, Cunningham, & Druen, 1999), although in face-to-face it is difficult to be deceptive about such personal attributes as appearance and age.

There is also a more sinister side to the Internet that may serve as a formidable barrier to the most cautious of singles. Although they may be fewer in number now that the online dating industry has become mainstream and background checks exist at some sites, Internet predators still exist. Similar to what can occur in face-to-face interaction, some men may initiate a first date in order to isolate a woman and sexually assault her (Shotland, 1989). For further discussion of Internet stalking, see Spitzberg and Cupach (2007).

Relationship Initiation at Computer Matching Services

This section discusses the process by which relationships begin through online matching services. We first discuss the formal role of computer matching services as a commercial market intermediary in relationship initiation. Second, we discuss more specifically how members search for compatible mates at the leading relationship-oriented Internet matching sites. Third, we discuss how relationship initiation that occurs through online matching sites is different from relationship initiation that occurs face-to-face, including through other commercial means.

Matching Services as a Formal Marriage Market Intermediary

Rarely have people formed intimate relationships completely unassisted by others. In some cultures, especially in past times, marriages were arranged by families. Even within societies that offer freedom in mate selection (e.g., North America), mating choices are influenced by family and friends. Friends, in particular, are helpful in providing social opportunities for people to meet others for romantic liaisons (e.g., Sprecher, Felmlee, Orbuch, &

Willettts, 2002). To the degree that family and social networks help people initiate relationships, they serve as “informal marriage market intermediaries (MMIs)” (Ahuvia & Adelman, 1992).

The same social opportunities provided informally by social networks to facilitate potential pairings are also offered more formally and for a cost by commercial (formal) marriage market intermediaries, such as Internet matching services. As we noted earlier, there has always been a commercial aspect to mate selection. However, a recent explosion has occurred in market functions that commercial niches offer to assist in relationship formation, especially for busy professionals (Ahuvia & Adelman, 1992; Bernard & Adelman, 1990).

Ahuvia and Adelman (1992) introduced a framework referred to as the “Searching-Matching-Interaction” model to describe the marriage market functions served by these MMIs. The *searching* function refers to acquiring information on who is available. The *matching* stage refers to actual decision-making for creating compatible matches. The third stage of the SMI framework refers to the “transaction” or “*interaction*” which can lead to the development of a romantic relationship. MMIs can provide one, two, or all three marriage functions. Although informal MMIs (e.g., social networks) also serve these functions, they do so less efficiently (Ahuvia & Adelman, 1992).

Ahuvia and Adelman (1992) described computer dating services as potentially assisting in both searching and matching. We note that some online matching sites (e.g., Match.com) focus primarily on the searching function, others (e.g., eHarmony.com) focus primarily on the matching function, and still others (e.g., Perfectmatch.com) offer both. In the early 1990s, when Ahuvia and Adelman’s review was written, computer-dating services were limited to those developed by college researchers interested in studying interpersonal attraction processes (e.g., Coombs & Kenkel, 1966; Walster [Hatfield] et al., 1966). The purpose of these computer dating

studies was to match people based on certain criteria and then to see how much they were attracted to each other (as we noted earlier, the assistance of computers was minimal in these studies). Ahuvia and Adelman (1992, p. 459) summarized the findings of these studies in the following way: “physical attractiveness has shown to be highly correlated with attraction...Attempts to predict attraction based on personality variables and attitudes, however, have met with only limited success.” At the time they wrote their review, Ahuvia and Adelman (1992) could find only two studies more specifically on commercial dating services. One was a conference paper by Woll (1987), who during the 1980s, had conducted several studies on matching through videodating services. As summarized in Ahuvia and Adelman, Woll (1987) presented “a compelling argument that a properly programmed computer would be better than a human matchmaker at predicting a couple’s compatibility” (p. 459). In the other computer dating study available at the time, Sindberg, Roberts, and McClain (1972) compared a group of couples that had married after being matched by a computer matching agency with a control group of couples that met but did not marry. Generally, the couples in both groups were homogenous on many traits, with homogamy on a few traits (e.g., degree of optimism vs. pessimism) particularly associated with the likelihood of marrying.

Much has changed since Ahuvia and Adelman’s (1992) theoretical review of market intermediaries was published. Computer services have advanced to the forefront of the market of formal intermediaries in matchmaking. The more general result of the popularity of matching making services is the increased social legitimacy of the marketing of the *searching* and *matching* functions of relationship formation. In addition, we predict that there soon will be a large number of scientific studies conducted with commercial dating services and the relationships that are formed from them, although currently there is limited amount of published

literature. In addition, future matching sites may also go beyond the searching and matching functions to offer more online interactions to facilitate singles finding an appropriate match (see work on “virtual dates” by Frost, as discussed in Evans, 2006).

From First Submission of Profile to the Development of the Relationship

How do people engage in relationship initiation through online relationship sites? In this section, we describe the process based on what we have gleaned from dating websites and popular articles (e.g., Gottlieb, 2006) and through the lens of a theoretical model from the relationship field, Levinger’s (1974, Levinger & Snoek, 1972) model of pair relatedness. The model presents relationship development as progressing through the following stages: zero contact, unilateral awareness, surface contact, and a continuum of mutuality. We will refer to the two people who are meeting as P (Person) and O (Other).

Level 0 (zero contact) serves primarily as a benchmark, but the first stage (Level 1) in which relationship initiation occurs is *unilateral awareness*. At this stage, P becomes aware of O. O may become aware of P at nearly the same time, at a later time, or not at all. At Level 2, *surface contact*, P and O have initial contact. If positive impressions are formed between P and O at surface contact, the relationship may progress to Level 3, a stage representing increasing degrees of *mutuality*, during which more mutual disclosure, discovery and investment occur (Levinger, 1974). Of course, the relationship could end at any time, and often does end after brief surface contact occurring through Internet interactions.

Below we discuss how P and O move through the stages of awareness, surface contact, and mutuality in the online world of matching services. We distinguish between relationship initiation on those sites that rely on members to make their own matches versus relationship initiation on sites that offer assistance in the matching process.

Relationship sites with member-initiated matches. Most websites facilitate searching by allowing people to post profile information, as well as search the profiles of others. The profile information includes vital demographic information (e.g., age, gender), education, likes and dislikes, and usually a photograph. Online profile information is generally lengthier and more detailed than printed versions of personal advertisements (e.g., in the newspaper), because, in contrast to the online printed version, there is no cost based on length. Some websites also allow video profiles.

If a P visiting one of the dating websites has the time and motivation, she could search many profiles, and therefore experience unilateral awareness with many Os. To narrow the field to those who are geographically accessible for offline relationships, she would likely search based on zip code, city, or state. To assist members in finding the most compatible matches, some sites (e.g., Match.com) offer keyword searches, in which members narrow their searches to those who mention in their profile a particular word or phrase (e.g., “dancer,” “like to travel”). Even so, a frustration that has been expressed by some members of large dating websites is that there are too many profiles to review. As noted by Thompson and his colleagues (2005), it can sometimes feel like “trying to find a needle in a bigger and bigger haystack” (p. 26).

From the pool of Os that P becomes aware of after searching through online profiles, she can decide with whom she would like to advance to surface contact. To our knowledge, research has not been conducted on the decision-making process that occurs during profile searches at online matching sites. However, an early study on decision strategies used in videodating is relevant. Woll (1986) instructed members of a video-dating service to read the profile sheets of other members of the videodating service and describe into a tape recorder the exact factors they were considering in the decisions about whether to view their videotapes. He found that the

members were most likely to refer to the age and physical attractiveness of the other members as affecting their choices.

Websites encourage their members to post a photo because the chances of being selected without a photo are small. Levitt and Dubner (2005) cite research by Hortacsu and his colleagues who found men who included their photo in their profile receive three times the responses of men who do not; for women, the increase is six-fold. The photos allow “chemistry” to begin (or not), and the assumption among people who post their own photos is that the omission of a photo means that the person is unattractive. This may not be true (many of the profiles without photos insist that they are quite good looking) but in the absence of data to the contrary, searchers assume that photo-less profiles hide less physically compelling candidates. Whitty’s in-depth interviews with users of online dating also revealed the importance of posting a photograph (Whitty & Carr, 2006).

Surface contact on matching websites involves first engaging in a form of anonymous contact, which is usually controlled by the particular website. For example, at some sites, the first surface contact that members can have with others is to send a/an wink, “ice breaker,” happy face, “spark,” or another type sign of interest. This represents a request from P to O to return the awareness and serves as an invitation to move the relationship to surface contact. O may completely ignore the request or may read P’s profile information and decide whether he or she wants to respond. O may not respond if he or she: (a) is flooded with messages of interest from many others (has “alternatives”); (b) does not think the other would make a good match after reviewing P’s profile information; or (c) is not a paid member of the relationship site (some sites allow “visitors” to post profiles for free but not respond to messages from others until they pay).

If O responds to P, the surface contact stage of relationship initiation continues. Next, the two are likely to move to two-way online communication, which is usually in a structured anonymous format offered through the relationship site. For example, electronic messages can be exchanged between P and O without names or other identifying information. An interview study conducted with couples who met online (Baker, 1998) suggests that people's early attraction is influenced not only by what they learn about the other's attributes, but also by O's writing style and speed of responding to messages. Attraction and the likelihood of continuing the initiation process may also be influenced by how the social network is responding to the developing relationship -- assuming they know about it (Wildermuth, 2004).

Similar to the surface contact stage that occurs in face-to-face interaction, two people who communicate for the first time online often begin with superficial information and then progress to sharing more personal information and disclosures. Research indicates that it is fairly easy to disclose online (Merkle & Richardson, 2000; Wysocki, 1996, 1998; see McKenna in this volume), and thus minor intersections of mutuality and interdependence can develop fairly easily even before there is a face-to-face meeting (e.g., Parks & Floyd, 1996; Parks & Robert, 1998). Experts on interaction in cyberspace note that individuals are often strategic in the presentation of "the self" that they choose to emphasize in initial online interactions (Albright, 2007; Whitty & Carr, 2006; Whitty, 2007).

The P who has the time and motivation to have surface contact with many Os is likely to move to a stage of mutuality with at least one but possibly several others. Initial stages of mutuality may begin online, but are likely to advance to phone calls; exchange of cards, letters, and photographs through mail; and possibly a face-to-face meeting. When people decide to approach another person after an initial Internet screening, they are moving to another stage of

cues and information. Each stage can involve different cues (e.g., voice cues in telephone contacts). Some sites now offer a way to make anonymous phone calls so that the recipient cannot have access to the caller's phone number. If P and O meet in person, they are encouraged to do so in a public location. When P and O do meet offline, the relationship is likely to either move to deeper levels of mutuality or end if they discover the chemistry they had online does not transfer to face-to-face interaction. Merkle and Richardson (2000) noted that many online relationships fade away well before personal contact occurs, and many others are likely to end after a first meeting. Not only does lack of chemistry in face-to-face interaction cool what might have been a spark of romance occurring in online communication, but so does any disappointment experienced if it is realized that the other misrepresented him/herself in their profile (e.g., Whitty, 2004).

Relationship sites with matching assistance. As noted earlier, eHarmony.com, Perfectmatch.com, Chemistry.com and an increasing number of other sites offer "matching assistance." These sites require members to complete lengthy questionnaires, and based on the information provided in these questionnaires, the site sends members "compatibility matches" and a procedure to begin communicating if they wish. To match members based on their questionnaire data, matching sites are using what has been referred to in the business as "love or matching algorithms" (e.g., Orenstein, 2003), matching formulas based supposedly on scientific principles and translated into computer programs that can sift through the volumes of data collected from the members. Dating websites generally do not publish their matching formulas or subject them to peer review, but information on their website and in the media (e.g., Gottlieb, 2006) suggests that the focus is on compatibility (mostly similarity, although occasionally differences too) in personality characteristics. The sites that offer scientific matching have been

able to charge more, and as a result, other dating sites such as Match.com, that have traditionally offered only the searching function, are beginning to incorporate objective science into the matching process (e.g., Orenstein, 2003).

Some of the dating sites also offer a multiple stage process for initiating contact, which is described to help two people learn more about each other in a nonthreatening way. For example, at eHarmony.com, this involves responding to multiple-choice items, sharing “must haves” and “can’t stands”, and writing and exchanging questions. The other sites recommend similar steps for initial interaction.

Regardless of the specific type of online dating world in which P and O maneuver through awareness, surface contact, and on to minor intersections of mutuality, the pair may or may not migrate offline. Some friendships form online and remain online. Most people who become members of matching services, though, are interested in forming a romantic relationship and therefore success is measured by a relationship that moves to face-to-face and on to a long-term commitment.

Relationship Formation at Internet Services Compared To Other Ways of Forming Relationships

Above we discussed the specific steps of relationship initiation at online dating sites. In this section, we speculate how initiation steps and basic attraction processes may differ in online versus offline.

Predictors of Attraction Online Versus Offline

Some of the factors that have been found to affect attraction and the formation of relationships include similarity in attitudes and values, physical proximity, physical attractiveness of potential partners, self-disclosure in the process of getting to know another person, and support from friends and family for the relationship (Berscheid & Reis, 1998;

Hatfield & Rapson, 2005). Each of these factors may affect relationship formation, and each may work via the medium of the Internet (or email) or via in-person interaction. However, these factors play out in different ways and points in time in the different means of meeting.

According to Merkle and Richardson (2000), the process of attraction in a face-to-face romantic relationship is likely to involve first the influence of spatial and physical attractiveness, and then the discovery of similarity and the role of self-disclosure. They state that in contrast, Internet-initiated romantic relationships involve “an inverted developmental sequence,” which first involves a high level of mutual and sometimes intense self-disclosure and an initial minimal role for physical attractiveness and proximity (see, also, Cooper & Sportolari, 1997). Physical attractiveness will still play a role once two people meet in person, as noted by Cooper and Sportolari (1997, p. 9), but its impact may be less because it follows learning other information about each other. The authors speculate that by the time two people meet “the felt intensity and meaning of any unappealing physical traits are then more likely to be mitigated by the overall attraction that exists.”

An interesting finding from early work on face-to-face versus online initiation is that Internet users may come to personally know one another better and share intimate knowledge more quickly than do persons who meet in person (Wysocki, 1998). In a survey of persons using the Internet for matchmaking, Wysocki found that people often spend a great amount of time writing about themselves and asking questions of others. Such activity may constitute a type of social penetration (Altman & Taylor, 1973). Presumably, the safety of anonymity and the alacrity of writing on the computer versus talking face-to-face may mediate such findings. Walther and Parks (2002) argue that not only does the intensity of self-disclosure lead to the development of closeness, but closeness is also enhanced by the ability to present oneself

carefully by editing messages and the tendency to make idealistic attributes of the (initially distant) other. Although closeness based on intense self-disclosure may develop more quickly in the Internet-developed relationships, the relationships may also more easily and quickly *dissolve* if there is not an adequate reward/cost ratio. That is, there may be fewer barriers to breaking up, which include the influence of having many additional alternatives (Merkle & Richardson, 2000).

What do couples themselves say attracted them to the other when they first became acquainted online? In a small study of 18 couples who met online and then migrated offline, Baker (1998) reported that couples mentioned sense of humor, response time, interests, qualities described online, and writing style. Whitty and Gavin (2001) interviewed people who had developed online relationships and found that they valued many of the same relationship characteristics that people valued in face-to-face relationships, including trust, honesty, and commitment. In addition, people are attracted to those who were honest in how they presented themselves in their profile.

Getting Help from Friends Versus an Internet Service

One common traditional way of meeting another is through friends. Friends assist in the mating process in a variety of ways, including presenting social opportunities for others to meet and by actually making introductions (e.g., Sprecher et al., 2002). It is useful to compare relationship initiation that occurs through the assistance of computer matching services (and their scientific advisors) and relationship initiation that occurs through the assistance of friends.

Although in both cases there is assistance by a third party, there are differences between formal (e.g., computer matchmaking services) and informal (e.g., social network) marriage market intermediaries (MMIs) in addition to formality and cost. First, formal MMIs are typically

more *efficient* (Ahuvia & Adelman, 1992). The online services often are always available and can be accessed as needed. Conversely, there is a limit to the degree that people can ask friends to host social events or introduce them to their friends. Furthermore, an almost unlimited number of people can be serviced by online matching services (millions are now members of some online dating services), whereas there is a limit in how many single friends are available through the network of one's friends.

A second difference between formal and informal MMIs is that the formal MMIs can be anonymous. One can remain anonymous to potential matches during the early stages of contact, revealing one's identity to the other only after trust has developed. In addition, in a way that might not be possible when one is searching for a partner in face-to-face interactions, people can search for a partner online without family and friends being aware.

The third difference is that the formal MMIs emphasize to a greater degree than the informal MMIs (i.e., social networks) that mating is a transaction in which assets are exchanged and people possess market value (for a review of exchange and equity principles, see Hatfield, Rapson, & Ryan, in press; and Sprecher & Schwartz, 1994). As noted by Ahuvia and Adelman (1992), "social scientists have long seen mate selection as occurring in a marriage market where both economic and interpersonal assets are exchanged. Commercial dating services, by making these assets explicit, further emphasize the relevance of market theory" (p. 454). The explicitness of the market value of individuals may be particularly evidenced in online personal advertisements, in which participants must emphasize their assets in a few sentences in order to appeal to potential seekers. To have others become interested enough to want to pursue them, members need to emphasize and even augment their professional status, appearance, and any other personal assets that they can offer. This is in contrast to relationships formed face-to-face,

in which spatial and social proximity may naturally bring people together who have similar exchange assets and/or information about “exchange value” can be indirectly acquired through observations and information from the social network. On the other hand, some experts have argued just the opposite occurs once there is online interaction. As noted by Cooper and Sportolari (1997, p. 9), “Electronic relating offers a different basis for interaction than that of the ‘meat market’ of the singles scene.” People can get to know each other before there is an opportunity to exhaustively evaluate each other’s appearance.

Online Relationships Versus Other Commercial Means for Meeting Others

We can also compare relationship initiation that occurs through online dating services with that which occurs in other commercial ways of meeting. Other commercial means include the now old-fashioned newspaper advertisements; singles groups meetings, parties, dinners, dances, and so-called “speed dating.” Most of these other commercial means for meeting people focus on the “interaction” aspect of the Searching-Matching-Interaction framework presented above; less assistance is provided in matching decision-making. Most of these other alternative ways also focus on finding matches within one particular geographic location. These activities may provide the advantages of information gained through in-person meetings. However, those attending these events also are dependent on who shows up and the ease of singling out any one individual for chatting. At singles functions, including dances, one may have to wade through a host of people to get to the one for whom there is attraction. Those who are shy or socially awkward, however, may have a difficult time in these settings (Sprecher & McKinney, 1987).

There is a plethora of variables associated with each type of in-person meeting, from random encounters to hook-ups at bars, to meetings at singles’ events to set-ups by friends. These variables include the availability and density of singles, their interests in meeting others,

and the amount of time and special interaction circumstances required for meeting (e.g., a man may want to ask one woman in a group of women to spend time with him, but be deterred by the size and nature of the group). These variables also speak to the delicate tactical and self-presentation considerations that frequently go into these in-person meetings (Goffman, 1959).

Speed dating is an interesting activity that has flourished in recent years. It is a commercially-brokered service that involves advertising an event and then regulation of time each possible person has to talk to an “assigned date” (see chapter in this book by Eastwick & Finkel). It usually is done in large meeting rooms in hotels or bars and also involves a concluding questionnaire that asks persons to indicate which of the possible partners they might like to interact with further. Speed dating appears to be successful only to the degree that a host of well-qualified partners show up for the event. If advertising, practical matters such as time of the event and place, geography in terms of density of singles population, or word-of-mouth commentaries are not favorable, then the event will not be successful, especially over the long-run. Such events require capital and lots of organization. A sponsor may put on a few such events, not make enough money to continue, and thus leave at the doorstep users who began to rely on this means of meeting possible partners. On the other hand, speed dating has its admirers. It is ideal for people who feel that they know almost immediately whether they are interested in someone (see Eastwick & Finkel, this volume).

Conclusions and Future Research Directions

Although relationships are still far more likely to be initiated offline than online, an increasing number of men and women are seeking the assistance of Internet matchmaking services (e.g., Madden & Lenhart, 2006). An interesting development that has occurred as a result of the popularity of matching services is the greater awareness by the media and lay public

of the scientific study of relationships, and particularly that of mate selection and attraction. Several dating websites (e.g., eHarmony.com, Perfectmatch.com) claim to be utilizing the existing scientific literature on relationship initiation, mate choice, and factors leading to relationship success in crafting their compatibility questionnaires and in devising matching algorithms for pairing members. Some dating websites also seem genuinely interested in contributing to the scientific base of relationships. For example, eHarmony.com has created a research laboratory and hired a team of scientists. Among other projects, they are conducting longitudinal research with couples who met through eHarmony.com matching (Gottlieb, 2006). Therefore, a mutually beneficial merger is being developed between the scientific field of relationships and the commercial matchmaking services. The sites have benefited from the scientific knowledge created in academe about personal relationships, but the scientific field also has the opportunity to benefit from the commercial websites' desire to make matchmaking a science. Nonetheless, whether the profit-making motive of the commercial enterprises will be compatible with the openness and objectivity required in scientific analysis is yet to be determined (e.g., Houran, Lange, Rentfrow, & Bruckner, 2004).

We would like to comment on three types of research that may be conducted in the future that will enhance our understanding of relationship initiation. First, the sites are likely to (or continue to in some cases) conduct proprietary research that tests aspects of their matching algorithms or examines customer satisfaction and relationship success in response to matching innovations or online get-acquainted strategies. Although such findings may never be published in scientific journals, the findings may become available through the websites and in other reports and therefore have indirect implications for the scientific study of relationships.

Second, the scientific advisors and others who gain access to the matching services may be allowed to test theories about relationship initiation and development with a sample obtained from the website. The sample of online daters is not representative of singles who are at early stages of relationship development, but the generalizability of a sample of online daters may not be any more problematic, and may even be less problematic in some cases, than relying on college samples (Buchanan, 2000). In addition, the unique advantage of samples from matching websites is the ability to collect data from individuals in the midst of initial acquaintanceship, or even before they have noticed each other, something that is difficult to do even with convenient human subjects pools in psychology. Furthermore, because members of websites often interact with many others before finding a successful relationship, within-subjects comparisons can be conducted to examine the types of initial pairings and interactions that are most successful for the development of relationships, controlling for individual factors. Various innovative methods can be used, including Interaction records (Wheeler & Reis, 1991), in which the members complete a brief record after each significant get-acquainted interaction. This approach has already been used in the Northwestern Speed Dating Study (see Eastwick and Finkel, this volume).

A third type of research can compare later stages of successful relationships that had their origins in online matching with that of relationships that are initiated offline. If Dr. Warren, founder of eHarmony, is correct, relationships that are formed based on “the deep compatibility” that is claimed to be possible with compatibility matching at dating websites should have greater happiness and lower divorce rates than relationships that begin in more traditional ways controlling for such critical variables as length of relationship, divorce status, and the presence of children. However, another viewpoint discussed in this chapter is that such cyber-space initiated

relationships will not benefit from the support that comes from being in a relationship that emerges through social networks and will have costs involved if at least one of the partners has to re-locate in order for the pair to be in the same geographical region. Such comparison research has been conducted by eHarmony.com (Carter & Snow, 2004), but would be better conducted by independent research organizations or teams. One possible project could be to examine how the relationships that are formed online differ from relationships that are formed offline on a number of dimensions including whether they are less homogenous than relationships formed in more traditional dating practices, and also differ on relationship satisfaction, longevity, and other indicators of quality. We speculate that once relationships that have begun through online dating services migrate offline, they may not be that different from relationships that form in other ways. The dissolution/divorce rates are likely to be the same, and probably the same factors will influence success versus dissolution. However, whether or not this is so is an empirical question that can be examined in future research.

In sum, commercial matching services are still in their infancy. In time – given the resources and money that are bound to be lavished on improving such commercial enterprises – it is reasonable to hope that matching sites will provide increased opportunities for men and women to find dating and marital relationships that are fulfilling. It is also hoped that in the future, the businessoflove.com sites will use more complex versions of relationship science to inform their questionnaire construction, website construction, and matching algorithms; and that, in turn, Internet matching services will allow scholars to conduct the research needed to enrich understanding of attraction and love relationships.

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