



HOW DO I LOVE THEE?

A growing number of Internet dating sites are relying on academic researchers to develop a new science of attraction. A firsthand report from the front lines of an unprecedented social experiment.

BY LORI GOTTLIEB

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I'd been sitting in Dr. Neil Clark Warren's office for less than fifteen minutes when he told me he had a guy for me. It wasn't surprising that the avuncular seventy-one-year-old founder of eHarmony.com, one of the nation's most popular online dating services, had matchmaking on his mind. The odd thing was that he was eager to hook me up without having seen my eHarmony personality profile.

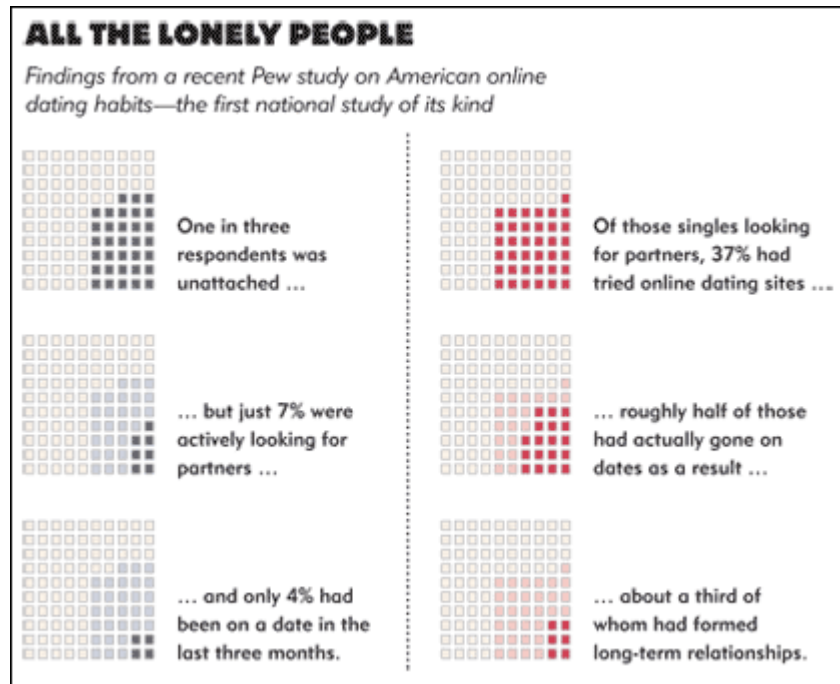
I'd come to the eHarmony headquarters in Pasadena, California, in early October to learn more about the site's "scientifically proven" and patented Compatibility Matching System. Apparently, the science wasn't working for me. The day before, after I'd taken the company's exhaustive (and exhausting) 436-question personality survey, the computer informed me that of the approximately 9 million eHarmony members, more than 40 percent of whom are men, I had zero matches. Not just in my city, state, region, or country, but in the entire world. So Warren, who looks like Orville Redenbacher and speaks with the folksy cadence of Garrison Keillor, suggested setting me up with one of his company's advisory board members, whom he described as brilliant, Jewish, and thirty-eight years old. According to Warren, this board member, like me, might have trouble finding a match on eHarmony.

"Let me tell you why you're such a difficult match," Warren said, facing me on one of his bright floral sofas. He started running down the backbone of eHarmony's predictive model of broad-based compatibility, the so-called twenty-nine dimensions (things like curiosity, humor, passion, intellect), and explaining why I and my prospective match were such outliers.

"I could take the nine million people on our site and show you dimension by dimension how we'd lose people for you," he began. "Just on IQ alone—people with an IQ lower than 120, say. Okay, we've eliminated people who are not intellectually adequate. We could do the same for people who aren't creative enough, or don't have your brilliant sense of humor. See, when you get on the tails of these dimensions, it's really hard to match you. You're too bright. You're too thoughtful. The biggest thing you've got to do when you're gifted like you are is to be patient."

After the over-the-top flattery wore off—and I'll admit, it took an embarrassingly long time—I told Warren that most people I know don't join online dating sites to be patient. Impatience with real-world dating, in fact, is precisely what drives many singles to the fast-paced digital meat market. From the moment Match.com, the first such site, appeared in 1995, single people suddenly had twenty-four-hour access to thousands of other singles who met their criteria in terms of race, religion, height, weight, even eye color and drinking habits.

Nearly overnight, it seemed, dozens of similar sites emerged, and online dating became almost de rigeur for busy singles looking for love. According to a recent Pew survey, 31 percent of all American adults (63 million people) know someone who has used a dating Web site, while 26 percent (53 million people) know someone who has gone out with a person he or she met through a dating Web site. But was checking off boxes in columns of desired traits, like an à la carte Chinese take-out menu, the best way to find a soul mate?



Enter eHarmony and the new generation of dating sites, among them **PerfectMatch.com** and **Chemistry.com**. All have staked their success on the idea that long-term romantic compatibility can be predicted according to scientific principles—and that they can discover those principles and use them to help their members find lasting love. To that end they've hired high-powered academics, devised special algorithms for relationship-matching, developed sophisticated personality questionnaires, and put into place mechanisms for the long-term tracking of data. Collectively, their efforts mark the early days of a social experiment of unprecedented proportions, involving millions of couples and possibly extending over the course of generations. The question at the heart of this grand trial is simple: In the subjective realm of love, can cold, hard science help?

Although eHarmony was the first dating site to offer science-based matching, Neil Clark Warren seems like an unlikely pioneer in the field. Even though he earned a Ph.D. in clinical psychology from the University of Chicago, in 1967, he never had much of a passion for academic research—or an interest in couples. “I was scared to death of adults,” he told me. “So I did child therapy for a while.” With a master’s degree in divinity from Princeton Theological Seminary, he went on to Fuller Theological Seminary’s Graduate School of Psychology, in southern California, where he taught and practiced humanistic psychology (what he calls “client-centered stuff”) in the vein of his University of Chicago mentor, Carl Rogers. “I hated doing research,” he admitted, before adding with a smile, “In fact, I was called ‘Dr. Warm.’ ”

Fittingly, it was Warren’s family, not academia, that piqued his interest in romantic compatibility. “When my daughters came along, that was a big pivot in my life in thinking about how do two people get together,” he told me. “I started reading in the literature and realizing what a big chance they had of not having a satisfying marriage. I started trying to look into it.”

Soon he began a private practice of couples therapy—with a twist. “People have always thought, wrongly, that psychotherapy is a place to go deal with problems,” he said. “So when a couple would come in, I’d say, ‘Tell me how you fell in love. Tell me the funniest thing that’s happened in your marriage.’ If you want to make a relationship work, don’t talk about what you find missing in it! Talk about what you really like about it.”

Warren is a big proponent of what he likes to call “folksy wisdom.” One look at the shelves in his office confirms this. “I’ve been reading this little book about the Muppets—you know, Jim Henson,” he said. “And I’ve been reading another book about Mister Rogers. I mean, Mister Rogers was brilliant beyond belief! He got a hold of concepts so thoroughly that he could transmit them to six-year-old kids! Do you know how much you have to get a hold of a concept to transmit it simply? His idea of simple-but-profound has had a profound influence on me.”

The basis of eHarmony’s matching system also sounds simple but profound. In successful relationships, Warren says, “similarities are like money in the bank. Differences are like debts you owe. It’s all right to have a few differences, as long as you have plenty of equity in your account.”

He leaned in and lowered his voice to a whisper. “Mister Rogers and Jim Henson,” Warren continued, “they got a hold of the deep things of life and were able to put them out there. So that’s what we want to do with our products. We want to put them out there in a way that you’d say, ‘This is common sense. This seems right, this seems like it would work.’ Our idea of broad-based compatibility, I put it out there in front of you. Does that seem right?”

Whether or not it seems right on an intuitive level is almost beside the point. After all, eHarmony’s selling point, its very brand identity, is its scientific compatibility system. That’s where Galen Buckwalter comes in.

A vice president of research and development for the company, Buckwalter is in charge of recruiting what he hopes will be twenty to twenty-five top relationship researchers away from academia—just as he was lured away by Warren nine years ago. A former psychology graduate student at Fuller Theological Seminary (his dissertation was titled “Neuropsychological Factors Affecting Survival in Malignant Glioma Patients Treated with Autologous Stimulated Lymphocytes”), Buckwalter had become an assistant professor at the University of Southern California, where he was studying the effects of hormones on cognition, when he got the call from Warren.

“Neil knew I lived and breathed research, and he had this idea to try to develop some empirically based model to match people,” Buckwalter said when I visited him at his office at eHarmony. He wore a black T-shirt and wire-rimmed glasses, and had a hairstyle reminiscent of Einstein’s. “He wasn’t necessarily thinking, over the Internet—maybe a storefront operation like Great Expectations.” Relationships weren’t Buckwalter’s area, but he welcomed the challenge. “A problem is a problem, and relationships are a good problem,” he said. “In the research context, it’s certainly an endlessly fascinating question.”

With the help of a graduate student, Buckwalter reviewed the psychological literature to identify the areas that might be relevant in predicting success in long-term relationships. “Once we identified all those areas, then we put together a questionnaire—just a massively long questionnaire,” he said. “It was probably close to a thousand questions. Because if you don’t ask it, you’re never gonna know. So we had tons of questions on ability, even more on interest. Just every type of personality aspect that was ever measured, we were measuring it all.”

Because it wasn’t practical to execute a thirty-year longitudinal study, he and Warren decided to measure existing relationships, surveying people who were already married. The idea was to look for patterns that produce satisfaction in marriages, then try to reproduce them in the matching of singles.

Buckwalter's studies soon yielded data that confirmed one of Warren's longtime observations: namely, that the members of a happy couple are far more similar to each other than are the members of an unhappy couple. Compatibility, in other words, rests on shared traits. "I can't tell you how delighted I was," Warren said, "when the factor-analytic studies started bringing back the same stuff I'd seen for years."

But could this be true across the board? I told Warren that my most successful relationships have been with men who are far less obsessive than I am. Warren assured me that's not a similarity their system matches for. "You don't want two obsessives," he explained. "They'll drive each other crazy. You don't find two control freaks in a great marriage. So we try to tweak the model for that. Fifty percent of the ball game is finding two people who are stable."

For Warren, a big question remained: What should be done with these findings? Originally, he had partnered with his son-in-law, Greg Forgatch, a former real-estate developer, to launch the business. Their first thought was to produce educational videotapes on relationship compatibility. After all, Warren had recently written his book, *Finding the Love of Your Life*.

"We tried so hard to make videotapes and audiotapes," Warren said. "I went into the studio and made lists. We came up with a hundred things singles need. But singles don't want education; they want flesh! They want a person. So that's when, in 1997, we said, 'We've gotta help people find somebody who would be good for them. Some *body*.' "

To connect singles and create a data pool for more research, the Internet seemed the best option. Based on a study of 5,000 married couples, Warren put together the compatibility model that became the basis for eHarmony. "We got encouraged by everybody, 'Get out there, get out there! The first person to market is going to be the most successful, " Warren recalled. But he insisted on getting the matching system right before launching the site—and that didn't happen until August of 2000, during the dot-com bust. By 2001 he was contemplating declaring bankruptcy.

"And then," Warren recalled, "we found an error in our matching formula, so a whole segment of our people were not getting matched. It was an error with all the Christian people on the site."

This is a sensitive topic for Warren, who bristles at the widely held opinion that eHarmony is a Christian dating site. The company's chief operating officer, he offered by way of rebuttal, is Jewish, and Buckwalter, who became a quadriplegic at age sixteen after jumping into a river and breaking his neck, is agnostic. And while Warren describes himself as "a passionate Christian" and proudly declares, "I love Jesus," he worried about narrowing the site with too many questions about spiritual beliefs. Which is where the error came in.

"We had seven questions on religion," he explained, "and we eliminated four of them. But we forgot to enter that into the matching formula! These were seven-point questions. You needed twenty-eight points to get matched with a Christian person, but there was no way you could get them! We only had three questions! So every Christian person who had come to us had zero matches."

Fortunately, a wave of positive publicity, featuring married couples who'd met through eHarmony and the naturally charismatic Warren, turned things around. Still, Warren said of the innocent mistake, "you kind of wonder how many relationships fall apart for reasons like this—ow many businesses?"

Today, eHarmony's business isn't just about using science to match singles online. Calling itself a "relationship-enhancement service," the company has recently created a venture-capital-funded think tank for relationship and marital research, headed up by Dr. Gian Gonzaga, a scientist from the well-known marriage-and-family lab at the University of California at Los Angeles. The effort, as Gonzaga put it to me recently, is "sort of like a Bell Labs or Microsoft for love."

An energetic, attractive thirty-five-year-old, Gonzaga thought twice about leaving the prestige of academia. “It seemed cheesy at first,” he said. “I mean, this was a dating service.” But after interviewing with Warren, he realized that conducting his research under the auspices of eHarmony would offer certain advantages. He’d be unfettered by teaching and grant-writing, and there would be no sitting on committees or worrying about tenure. More important, since his research would now be funded by business, he’d have the luxury of doing studies with large groups of ready subjects over many years—but without the constraints of having to produce a specific product.

“We’re using science in an area most people think of as inherently unscientific,” Gonzaga said. So far, the data are promising: a recent Harris Interactive poll found that between September of 2004 and September of 2005, eHarmony facilitated the marriages of more than 33,000 members—an average of forty-six marriages a day. And a 2004 in-house study of nearly 300 married couples showed that people who met through eHarmony report more marital satisfaction than those who met by other means. The company is now replicating that study in a larger sample.

“We have massive amounts of data!” Warren said. “Twelve thousand new people a day taking a 436-item questionnaire! Ultimately, our dream is to have the biggest group of relationship psychologists in the country. It’s so easy to get people excited about coming here. We’ve got more data than they could collect in a thousand years.”

But how useful is this sort of data for single people like me? Despite Warren’s disclaimer about what a tough eHarmony match I am, I did finally get some profiles in my inbox. They included a bald man with a handlebar moustache, who was fourteen inches taller than me; a five-foot-four-inch attorney with no photos; and a film editor whose photo shows him wearing a kilt—and not in an ironic way. Was this the best science could do?

When I asked Galen Buckwalter about this, he laughed, indicating that he’d heard the question before. “The thing you have to remember about our system is we’re matching on these algorithms for long-term compatibility,” he said. “Long-term satisfaction is not the same as short-term attraction. A lot of people, when they see their initial matches, it’s like, ‘This is crap!’ ”

In ads and on his Web site, Warren talks about matching people “from the inside out.” Was eHarmony suggesting that I overlook something as basic as romantic chemistry? “When we started out,” Buckwalter said, “we were almost that naive.” But now, he added, eHarmony is conducting research on the nature of physical attraction.

“We’re trying to find out if we can predict physical chemistry with the same degree of statistical certainty that we’ve used to predict long-term satisfaction through our compatibility matching. In general, people seem to be attracted to people who share their physical attributes,” Buckwalter explained, noting that he has found some exceptions, like height preference. “There’s a lot of variability on that dimension,” he said. “A person’s height, it turns out, is not a consistent predictor of short-term attraction.” Meanwhile, Buckwalter’s team is in the process of testing new hypotheses.

“We’re still convinced that our compatibility-matching process is essential for long-term satisfaction, so we’re not going to mess with that,” he insisted. “But if we can fit a short-term attraction model on top of that, and it’s also empirically driven, that’s the Holy Grail.”

Over at Chemistry.com, a new site launched by Match.com, short-term attraction is already built into the system. This competitor of eHarmony’s was developed with help from Match.com’s chief scientific adviser, Dr. Helen Fisher, an anthropologist at Rutgers University, whose research focuses on the brain physiology of romantic love and sexuality. Chemistry.com is currently assembling a multidisciplinary group of psychologists, relationship counselors, sociologists, neuroscientists, and sexologists to serve as consultants.

The company sought out Fisher precisely because its market research revealed that although a large segment of singles wanted a scientific approach, they didn't want it to come at the expense of romantic chemistry. "On most of the other sites, there's this notion of 'fitness matching,'" Fisher said from her office in New York City. "You may have the same goals, intelligence, good looks, political beliefs. But you can walk into a room, and every one of those boys might come from the same background, have the same level of intelligence, and so on, and maybe you'll talk to three but won't fall in love with any of them. And with the fourth one, you do. What creates that chemistry?"

It's a constellation of factors, Fisher told me. Sex drive, for instance, is associated with the hormone testosterone in both men and women. Romantic love is associated with elevated activity of the neurotransmitter dopamine and probably also another one, norepinephrine. And attachment is associated with the hormones oxytocin and vasopressin. "It turns out," she said, "that seminal fluid has all of these chemicals in it. So I tell my students, 'Don't have sex if you don't want to fall in love.'"

Romantic love, Fisher maintains, is a basic mating drive—more powerful than the sex drive. "If you ask someone to go to bed with you, and they reject you," she says, "you don't kill yourself. But if you're rejected in love, you *might* kill yourself."

For Chemistry.com's matching system, Fisher translated her work with neurotransmitters and hormones into discrete personality types. "I've always been extremely impressed with Myers-Briggs," she said, referring to the personality assessment tool that classifies people according to four pairs of traits: Introversion versus Extroversion, Sensing versus Intuition, Thinking versus Feeling, and Judging versus Perceiving. "They had me pinned to the wall when I took the test, and my sister, too. So when Chemistry.com approached me, I said to myself, 'I'm an anthropologist who studies brain chemistry, what do I know about personality?'"

Turns out she knew quite a bit: Genes for the activity of dopamine are associated with motivation, curiosity, anxiety, and optimism. Genes for the metabolism of serotonin, another neurotransmitter, tend to modulate one's degree of calm, stability, popularity, and religiosity. Testosterone is associated with being rational, analytical, exacting, independent, logical, rank-oriented, competitive, irreverent, and narcissistic. And the hormone estrogen is associated with being imaginative, creative, insightful, humane, sympathetic, agreeable, flexible, and verbal.

"So I had these four sheets of paper," Fisher continued. "And I decided to give each a name. Serotonin became the Builder. Dopamine, the Explorer. Testosterone, the Director. And estrogen—I wish I'd called it the Ambassador or Diplomat, but I called it the Negotiator." Myers-Briggs, she says, "clearly knew the four types but didn't know the chemicals behind them."

The 146-item compatibility questionnaire on Chemistry.com correlates users' responses with evidence of their levels of these various chemicals. One question, for instance, offers drawings of a hand, then asks:

Which one of the following images most closely resembles your left hand?

- Index finger slightly longer than ring finger*
- Index finger about the same length as ring finger*
- Index finger slightly shorter than ring finger*
- Index finger significantly shorter than ring finger*

The relevance of this question might baffle the average online dater accustomed to responding to platitudes like, "How would you describe your perfect first date?" But Fisher explains that elevated fetal testosterone determines the ratio of the second and fourth finger in a particular way as it simultaneously builds the male and female brain. So you can actually look at someone's hand and get a fair idea of the extent to which they are likely to be a Director type (ring finger longer than the index finger) or a Negotiator type (index finger longer or the same size).

Another question goes like this:

How often do you vividly imagine extreme life situations, such as being stranded on a desert island or winning the lottery?

Almost never

Sometimes

Most of the time

All the time

“Someone who answers ‘All the time’ is a definite Negotiator,” Fisher said. “High estrogen activity is associated with extreme imagination.”

While other sites gather data based on often unreliable self-reports (“How romantic do you consider yourself to be?”), many of the Chemistry.com questions are designed to translate visual interpretation into personality assessment, thus eliminating some of the unreliability. In one, the user is presented with a book’s jacket art. We see a woman in a sexy spaghetti-strapped dress gazing at a man several feet away in the background, where he leans on a stone railing. The sky is blue, and they’re overlooking an open vista. “What is the best title for this book?” the questionnaire asks, and the choices are as follows:



A Spy in Rimini

Anatomy of Friendship: A Smart Guide for Smart People

A Scoundrel’s Story

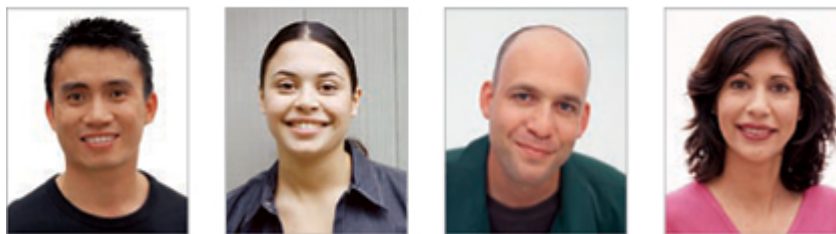
Things Left Unsaid

According to Fisher, each response is correlated with one of the four personality types: Choice A corresponds to Explorer, B to Builder, C to Director, and D to Negotiator.

Even sense of humor can be broken down by type, with questions like “Do you sometimes make faces at yourself in the mirror?” (people with a sense of humor do) and “At the zoo, which do you generally prefer to watch?” (the reply “monkeys and apes” indicates more of a funny bone than “lions and tigers”). According to Fisher, a Director likes people to laugh at his or her jokes; a Negotiator likes to be around someone funny so he or she can laugh at that person’s jokes; an Explorer is spontaneous and laughs at just about anything; and a Builder, she suspects, generally isn’t as funny as the others.

But how to match people up according to Fisher’s four personality types, and under what circumstances, isn’t so straightforward. Another question, for instance, presents four smiling faces and asks:

Take a look at the faces below. Are their smiles sincere?



Fisher says that people with high levels of estrogen—usually women—have better social skills, and are better at reading other people. So users who choose the correct “real” smiles (pictures two and three) will be the Negotiators. This, Fisher says, is an area where “complementarity” might be important. The problem with sites like eHarmony, she believes, is that they place too much emphasis on similarity, whereas, in her view, falling in love depends on two elements: similarity and complementarity. “We also want someone who masks our flaws,” she explained. “For example, people with poor social skills sometimes gravitate toward people with good social skills. I’m an Explorer, so I don’t really need a partner who is socially skilled. That’s not essential to me. But it may be essential to a Director, who’s generally less socially skilled.”

Chemistry.com’s compatibility questionnaire also examines secondary personality traits. To illustrate, Fisher cited her own relationship. “I’m currently going out with a man,” she said, “and of course I made him take the test instantly. We’re both Explorers and older. I’m not sure two Explorers want to raise a baby together, because nobody will be home. But in addition, I’m a Negotiator and he’s a Director type. Our dominant personality is similar, but underneath, we’re complementary.”

Determining which works best—similarity or complementarity—may change with the circumstances. A young woman who’s an Explorer, Fisher said, might be attracted to a Builder, someone who’s more of a homebody, loyal, dependable, and protective. But the pair will be more compatible if their secondary personalities match—maybe they’re both Negotiators underneath.

“Nobody is directly locked into any one of these temperament types,” Fisher said. “That’s why we provide each person with both a major and a minor personality profile. Do Explorers go well together? Do likes attract likes? Sometimes they do and sometimes they don’t.”

If this sounds a bit, well, unscientific, Fisher is the first to admit it. “I have theories about what personality type a person would be most ideally suited with,” she told me, “but I also trust people to tell me what they are looking for. All throughout the questionnaire are checks and balances to what are just Helen Fisher’s theories.”

This is why she decided to include an item on the Chemistry.com questionnaire that asks about the traits of a person’s partner in his or her most successful former relationship: Was that person an Explorer, a Builder, a Director, a Negotiator? “Anybody can match somebody for values. But I’m hoping to create a system so that five years later they still fascinate each other.”

At the same time, Fisher wants couples to be fascinated by each other early on. In other words, why waste time e-mailing back and forth to get to know a potential match over the course of several weeks, as eHarmony encourages its users to do, if there won’t be any chemistry when they finally meet? Chemistry.com’s guided 1-2-3-Meet system provides a step-by-step structure to get couples face to face as soon as possible for that all-important “vibe check.” Then there’s a post-meeting “chemistry check,” where each person offers feedback about the date.

The goal is to incorporate this information into the algorithm to provide better matches, but it can also serve as an accuracy check of the data. Say, for instance, that Jack describes himself as a fashionable dresser, but Jill reports that he showed up for their date in flip-flops, cut-offs, and a do-rag. If the feedback from a number of Jack’s first meetings indicates the same problem, Chemistry.com will send him an e-mail saying, “Jack, wear a pair of trousers.”

When I asked Helen Fisher how the site’s scientific algorithm might change based on this user feedback, she said that perhaps the computer could pick up cues about a person’s physical type based on the people he or she finds attractive or unattractive, then send that person closer matches. Or, it might know better than to match me—an avid reader attracted to literary types—with the guy whose personality assessment indicates a literary bent but whose essay reads as follows:

While I do read books, I have a notoriously short attention span for them. As a result, partially read copies of numerous really good (so I'm told) books are scattered around my apartment. When these get set aside, it's because I've gotten sucked into magazines ... Every few days, the magazines lose out to DVDs.

It's also possible that user feedback could change the matching formula completely. "We always look at data," Fisher said. "If we find that Explorer/Builder to Director/Negotiator is working for more people, if we find the biochemistry is stronger, we'll adjust that in the formula." Fisher acknowledged that the system right now is mostly a learning tool—a way to collect large amounts of data, look for patterns, and draw conclusions based on the findings.

Still, even a thoroughly researched biochemical model won't prevent glitches in the matching system. In Fisher's view, for example, no scientifically based site would pair her with the men she's dated, because, as she put it, "they're all better-looking than me."

"It would be preposterous for anyone to say they can create a formula that works perfectly," she said emphatically. "But I do believe that science can help us get close, and that there's a lot more to be learned."

This test doesn't pretend to be about chemistry," said Dr. Pepper Schwartz—who developed the Duet Total Compatibility System in conjunction with the two-year-old site **PerfectMatch.com**. She was speaking by cell phone from San Francisco, where she had just attended a meeting of the National Human Sexuality Resource Center, on whose board she sits. "The chemistry test at Match—that's not about chemistry either. If I could concoct a test for chemistry, I'd make a zillion dollars."

A sociologist at the University of Washington in Seattle, Schwartz is **PerfectMatch.com**'s hipper version of Neil Clark Warren: the accessible, empathic, media-savvy love doctor who guides users through the treacherous dating trenches and onto the path of true compatibility.

According to the site—which calls her by the cutesy moniker "Dr. Pepper"—Schwartz is "the leading relationship expert in the nation," a woman who "holds the distinction of being the only relationship expert on the Web who's a published authority, as well as a professor at a major U.S. university." Oh, and then there are her appearances on *Oprah*, *The Today Show*, and *Good Morning America*, the fourteen books she's written, and her regular column for LifetimeTV.com.

Unlike Warren, however, she neither founded the company (she was brought in by PerfectMatch's Duane Dahl), nor follows Warren's credo of simplicity. In fact, the nifty-sounding Duet Compatibility Profiler takes some complex deconstruction. This makes sense, given that Schwartz has been studying gender relations since the early 1970s, when she was a sociology graduate student at Yale and wrote a Ph.D. thesis on how people hooked up in the college mixer system.

Like Helen Fisher, the Rutgers anthropologist, Schwartz believes that both similarity and complementarity are integral to romantic compatibility. But while Fisher has more of an "it depends" attitude on the question of which of the two makes sense for a particular couple under particular circumstances, Schwartz has a more elaborately defined system, which she outlines in her latest book, *Finding Your Perfect Match*.

Schwartz's Duet model consists of a mere forty-eight questions and focuses on eight specific personality characteristics: romantic impulsivity, personal energy, outlook, predictability, flexibility, decision-making style, emotionality, and self-nurturing style. On the first four, she believes, a well-suited couple should be similar; on the last four, however, a couple can thrive on either similarity or difference—provided that both people know themselves well enough to determine which works best.

“My first thought was, *Know yourself*,” Schwartz said of how she created PerfectMatch’s system. “How can you pick somebody else if you have no insight into yourself?”

Her questionnaire, she believes, will help users to think in a conscious way about who they are. As an example of the kind of introspection she hopes for, Schwartz cites the area of money. “It’s a very important thing,” she said, “and there’s very little research on it, because nobody wants to talk about money. I can ask people if they’re orgasmic, and they’ll tell me in a second. But ask a subject about money, and they’re embarrassed.”

When it comes to money, PerfectMatch asks users to get specific—and honest—about how important it is to them. “I want them to think about things like, Should parents pay for college education no matter what it costs? Do you feel you need to make extravagant purchases every once in a while?” Other tests generally stop at innocuous questions about whether people consider themselves fiscally responsible, but Schwartz ventures into un-PC territory with true-or-false statements like, “All other things being equal, I tend to respect people who make a lot of money more than people who have modest incomes”; “I could not love a person who doesn’t make enough money to help me live the lifestyle I need in order to be happy”; and “I would very much prefer to be with someone who did not have major economic responsibilities to children or parents unless they had a lot of money and these responsibilities did not affect our life together.”

Like Chemistry.com’s system, Duet has its roots in the Myers-Briggs Type Indicator. But, Schwartz explained, Duet is different from Myers-Briggs in several ways. It has eight characteristics to Myers-Briggs’s four; it uses two personality profiles—similarity and complementarity—instead of one; and it relies on studies from a number of fields, rather than just psychology, to determine how these personality characteristics combine in romantic situations, as opposed to general workplace or team-building ones.

“If, say, I’m rigid in my tastes but I have a sense of humor,” Schwartz explained, “you can work with me. But if I’m rigid and very earnest, it’s going to be difficult. So in our test it’s not just, ‘Is this person rigid?’ Because rigidity can co-exist with humor or earnestness, and which one of those traits is present makes a big difference. It’s important how these traits are put together.”

I took the Duet test and was classified on the similarity scale as X, A, C, and V—that is, Risk Averse, High Energy, Cautious, and Seeks Variety. The site then interpreted the findings, which, to my surprise, rather accurately captured my personality:

You are careful about entering a relationship. You have a cautious side to your personality on more than one dimension, and so it takes you awhile to believe in love and romance with someone you are dating. Nonetheless, you are a high energy, intense kind of person. Once you believe in a relationship, you can be a good partner, IF you give it enough time. You demand a lot from the world and you take on a lot. You probably want someone who does the same, or at least supports your own high energy, explorative approach to life.

Yet the complementarity section of my test results—those traits on which my best match might be similar or different—reflected my temperament on only two of the four parameters. I was characterized as S, C, T, and E—that is, Structured, Compromiser, Temperate, and Extrovert—but I’m neither a C nor a T.

Schwartz wasn’t ruffled by these inaccuracies. “PerfectMatch is the only scientific site out there that’s completely transparent and user-operated,” she said. “If you disagree with me, you can retake the test anytime and get a different profile that more accurately reflects the subtleties we may have missed. Or you can keep the same profile, but in addition to the matches we provide for you, you can do a search on your own. Say I think a passionate person would want another passionate person. But maybe you know about yourself that you’re passionate, but want a calm person, someone who stops the escalation of things. I don’t care if what you think is theoretically sound; if it doesn’t work for you, you can search using your own criteria.”

This, she said, distinguishes PerfectMatch from eHarmony and Chemistry.com. “In the Chemistry test,” said Schwartz, who is a friend of Helen Fisher’s and a fan of her work, “there was a question about where you’d like to live. And I chose the country. And I would—but the people I tend to prefer are in the city. So they sent me people from Bass Breath, Arizona. And there was no way I could change it! At PerfectMatch, we don’t overdetermine people’s answers that way.”

What Schwartz is referring to, of course, is the bugaboo of all these compatibility-matching systems: nuance. “Even if a site lets you choose physical characteristics like height,” she said, “there’s no way it’s going to guess your physical template. It could be lankiness in one case, it could be somebody’s eyes in another. We can’t get that out of a questionnaire. Nobody can. So we say, ‘Go look at the pictures on our site, see who you find attractive, then look at their personality types and see if they’re compatible [with you]. You have that option on PerfectMatch.’ ”

The advantage to scientific matching, she says, isn’t to come up with some foolproof formula for romantic connection. Instead, the science serves as a reality check, as a way of not letting that initial rush of attraction cloud your judgment when it comes to compatibility.

“I went out with a man for about a year who, if I’d taken the test with him—we both would have known we should have stopped early on,” Schwartz said. “But, of course, I was attracted to him, and probably to the characteristics that were wrong for me, for the wrong reasons. That’s what attraction can do. But if you’re also armed with information about compatibility—or lack of compatibility—from the very beginning, you might think twice before getting involved, before you make the mistake of e-mailing the cute guy in the picture, like you might on Match.”

Schwartz, who had been married for twenty-three years before she reentered the dating pool, empathizes with PerfectMatch users. “I know what dating is like,” she said. “I’m doing it, too. You start to burn out, and you need to find a certain amount of positive reinforcement. So if we can cut down the really inappropriate personalities for you, we can help out.”

Of course, before the days of Myers-Briggs and PerfectMatch and academic departments devoted to deconstructing romantic relationships, there were matchmakers. And today, despite the science, they’re still thriving. One of the West Coast’s largest matchmaking agencies is called Debra Winkler Personal Search, and its slogan is the opposite of scientific: “The art of the perfect match.” Indeed, in the FAQ section of the company’s Web site, the reply to “How do you go about matching members?” reads as follows:

Our matchmakers use a combination of tools—including experience and intuition—when matching members. We start with basic demographic information such as age, religion, location, physical requirements and other preferences. Personality profiles are also used but not relied upon exclusively. In the end, however, it comes down to your personal matchmaker. They hand-select the individuals for you to meet. And it is not based on some absolute, statistical formula. It’s more like a feeling, gained from years of experience, that tells them you and another person would be great for each other.

Winkler founded the company eighteen years ago and sold it in 2003, leaving its day-to-day operations to Annie Ahlin, who worked with Winkler for fourteen years and until November was the company’s president.

“Intuition is a big part of determining long-term compatibility,” Ahlin told me. She said many of the agency’s clients are people who have tried scientific matching online but had no luck. Ahlin believes she knows why. “When you’re reading a profile online, or looking at a photo, it’s one-dimensional,” she explained. “It’s that person’s PR for themselves.” There’s no substitute, she believes, for sitting down with a person one-on-one to get the full picture.

“When we meet our clients, we get a multifaceted impression,” she said. “I may read on your profile that you love cats, but when I ask you about it, I learn that you had a beloved cat when you were three and now you’re allergic to them. Or, I’ll read a personality profile, but when I sit down with this person, I’ll think, *Wow, I didn’t know she had this kind of energy.* It wasn’t reflected on the page.”

While the Winkler clients fill out personality profiles similar to the ones found online, the difference, Ahlin believes, is the hour-and-a-half interview. Some of these matchmakers have a psychological background, but others are recruited for different reasons. “We go for people who have a heart, are good listeners, are empathetic, and who just have a feel for matching people for the long term,” Ahlin told me. “On resumes, we look for evidence of good people skills—PR, customer service, nursing. It’s not necessarily about an intellectual understanding. People either get it or they don’t.”

Ahlin estimates the agency’s success rate at 70 percent—meaning that 70 percent of clients either end up in a relationship engineered by their matchmakers or get engaged to someone they’ve met through the agency. But unlike the studies being done at eHarmony, there’s no follow-up to determine how long these relationships or marriages last, or how satisfying they are down the line. Besides, Ahlin admitted, other variables may play a role in the high number of pairings. “When you pay eight or ten thousand dollars for a service like ours,” she said, “you seriously want to find someone. It puts the notion ‘I’m really ready’ into your subconscious.”

Ahlin and her matchmakers use feedback forms like those on Chemistry.com to learn how a match went after two clients have met in person. But whereas the Chemistry.com people classify this step as part of their scientific research, Ahlin says simply, “This way, you know what it is that works so you can get closer the next time—it helps us with intuition.”

Often when Ahlin talks about intuition, she describes the same principles that the scientists I spoke with use in their empirically based matching systems. For instance, in matching couples, she follows what is essentially the similarity- complementarity model. “For a match to be successful,” Ahlin said, “a couple’s goals have to be the same, they have to want the same things in life.” But, she added, “that doesn’t mean they should be the same person. On the one hand, it’s good if they have the same experiences, but sometimes having experiences that are different adds energy to the relationship.”

Like Helen Fisher and Pepper Schwartz, Annie Ahlin believes that similarity and complementarity are situational models. “Each person is unique and contradictory,” she told me, “and you can’t just group people into big categories, the way the personality profiles do. So one person who is a Type A may be attracted to Type A in the beginning, but then we send them out and find out they need a Type B. So we adjust along the way. We’re always adjusting. It’s not a scientific process, it’s an intuitive one.”

Gian Gonzaga, the UCLA researcher hired by eHarmony, doesn’t dismiss matchmakers. “I wouldn’t be surprised if the basic constructs they’re measuring are the exact same ones [that scientists measure],” he said. “Those who are good at matchmaking are the ones who get that four or five things are really critical.”

I asked Gonzaga what those four or five things are, and he let out a long sigh.

“Oh, I don’t know,” he said, sheepishly. “It’s funny enough, but I don’t know. A similar sense of values. Other things, like agreeableness or warmth, are probably fairly important in terms of people matching up. You want two people who are relatively similar on wanting to cuddle, or things like that.”

At the word “cuddle,” I raised an eyebrow.

“It’s kind of an unscientific term,” he said, “but ... ”

I asked Gonzaga if using science to try to find lasting love might be too lofty a goal—a method that seems promising in theory but that turns out to be no more effective than consulting a matchmaker or cruising at your local bar. He disagreed.

“Imagine being in a bar,” he said, “and how hard it would be to find five people you might connect with. If you actually match those people in the beginning, you’re increasing your odds of meeting someone. Also, some people go to a bar to have a drink, some to meet people. We put people seriously looking for a relationship in one place, at the same time. So I think it’s both the medium and it’s the scale. And a matchmaker only knows so many people, but there are eight million or ten million users on eHarmony.”

Moreover, in the future, science-based dating sites will evolve in ways that mimic real-world situations. Galen Buckwalter, eHarmony’s research-and-development head, said that rather than relying on self-reports to assess how comfortable a person feels in social situations, his group is developing a model that will use computer simulation to immerse people in scenarios—a bar, a party, an intimate dinner—where variables like gender composition can be altered. “How does this person interact differently as the variables change?” Buckwalter asked. “I don’t think we’ll be relying on self-report twenty years from now. I think not only will data collection advance, but so will our analysis. We’re just at the beginning, really.”

Indeed, it may well take a generation before we learn whether the psychological, anthropological, or sociological model works best. Or maybe an entirely different theory will emerge. But at the very least, these dating sites and the relationships they spawn will help us to determine whether science has a place, and if so, how much of a place, in affairs of the heart.

Meanwhile, until these sites start sending me better dating prospects, I figured I’d take Neil Clark Warren up on his offer to introduce me to the thirty-eight-year-old single board member he thought would be such a good match for me. But when I asked a company spokesman about him, I was told that he had recently begun seeing someone. Did they meet through eHarmony? My potential soul mate declined to answer.

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