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A Match Made in the Code
By JOHN TIERNEY

New Orleans — In the quest to find true love, is filling out a questionnaire on a Web site any more scientific than praying to St. Valentine?

Yes, according to psychologists at eHarmony, an online company that claims its computerized algorithms will help match you with a "soul mate." But this claim was criticized in a psychology journal last year by a team of academic researchers, who concluded that "no compelling evidence supports matching sites' claims that mathematical algorithms work."

In response, eHarmony's senior research scientist, Gian C. Gonzaga, went into the academic lions' den known as S.P.S.P. — the big annual meeting of the Society for Personality and Social Psychology, held recently in New Orleans. Armed with a PowerPoint presentation, Dr. Gonzaga faced a packed hall of researchers eager for a peek at eHarmony's secrets.

Unlike many other Web dating services, eHarmony doesn't let customers search for partners on their own. They pay up to $60 per month to be offered matches based on their answers to a long questionnaire, which currently has about 200 items. The company has gathered answers from 44 million people, and says that its matches have led to more than half a million marriages since 2005.

Dr. Gonzaga, a social psychologist who previously worked at a marriage-research lab at the University of California, Los Angeles, said eHarmony wouldn't let him disclose its formulas, but he did offer some revelations. He said its newest algorithm matches couples by focusing on six factors:

¶ Level of agreeableness — or, put another way, how quarrelsome a person is.

¶ Preference for closeness with a partner — how much emotional intimacy each wants and how much time each likes to spend with a partner.

¶ Degree of sexual and romantic passion.

¶ Level of extroversion and openness to new experience.

¶ How important spirituality is.

¶ How optimistic and happy each one is.

The more similarly that two people score in these factors, the better their chances, Dr. Gonzaga said, and presented evidence, not yet published, from several studies at eHarmony Labs. One study, which tracked more than 400 married couples matched by

eHarmony, found that scores from their initial questionnaires correlated with a couple's satisfaction with their relationship four years later.

"It is possible," Dr. Gonzaga concluded, "to empirically derive a matchmaking algorithm that predicts the relationship of a couple before they ever meet."

Not so fast, replied the critics in the hall. They didn't doubt that factors like agreeableness could predict a good marriage. But that didn't mean eHarmony had found the secret to matchmaking, said Harry T. Reis of the University of Rochester, one of the authors of last year's critique.

"That agreeable person that you happen to be matching up with me would, in fact, get along famously with anyone in this room," Dr. Reis told Dr. Gonzaga.

He and his co-authors argued that eHarmony's results could merely reflect the well-known "person effect": an agreeable, non-neurotic, optimistic person will tend to fare better in any relationship. But the research demonstrating this effect also showed that it's hard to make predictions based on what's called a dyadic effect — how similar the partners are to each other.

"In the existing literature, similarity components are notoriously weak at accounting for relationship satisfaction," said Paul W. Eastwick of the University of Texas, Austin. "For example, what really matters for my relationship satisfaction is whether I myself am neurotic and, to a slightly lesser extent, whether my partner is neurotic. Our similarity on neuroticism is irrelevant."

Dr. Gonzaga agreed that previous researchers hadn't been able to predict satisfaction based on partners' similarities. But he said that was because they hadn't focused on the factors identified by eHarmony, like the level of sexual passion, where it was especially important for the partners to be compatible. And while some traits, like agreeability, may be helpful in any relationship, he said, it still helped for partners to be similar.

"Let's say you measure agreeableness on a scale of 1 to 7 for each partner," Dr. Gonzaga said. "A couple with a combined score of 8 has better chances than a couple with a lower score, but it also matters how they got to 8. A couple with two 4s is better off than a couple with a 1 and a 7."

His assertion left the critics slightly intrigued but quite unconvinced.

"If dyadic effects are real, and if eHarmony can establish this point validly, then this would be a major advance to our science," Dr. Reis said. But he and his colleagues said that eHarmony hadn't yet carried out, let alone published, the sort of rigorous study necessary to prove that its algorithm worked.

"They have run a few studies, without peer review, that examine existing couples," said Eli J. Finkel of Northwestern University, the lead author of the critical paper last year.

"But it's crucial to remember that that's not what their algorithm is supposed to do. The algorithm is supposed to take people who have never met and match them."

To verify the algorithm's effectiveness, the critics said, would require a randomized controlled clinical trial like the ones run by pharmaceutical companies. Randomly assign some individuals to be matched by eHarmony's algorithm, and some in a control group to be matched arbitrarily; then track the resulting relationships to see who's more satisfied.

"Nobody in the world has the treasure chest of resources for relationships research that eHarmony has," Dr. Finkel said, "so we can't figure out why they haven't done the study."

Dr. Gonzaga said he had ethical qualms about matching people arbitrarily, and that such a trial seemed unnecessary in light of eHarmony's other studies. "We have what I think is unique evidence showing that couples high in compatibility are more satisfied with their relationships," Dr. Gonzaga said. "It makes us comfortable that we've done our job well."

Even if eHarmony is not interested in doing the clinical trial, the work presumably could still be conducted by outsiders. The academic critics estimated the trial might cost between $250,000 and $1 million, and said they would run it themselves if the money were provided.

Until then, they remain skeptical of secret algorithms, but they do offer some encouragement to singles seeking online connections. Whether or not the algorithms work, the dating sites offer lots of potential mates, and there's some screening done simply by self-selection. After all, it takes an effort to go through the process of registering, particularly when it requires answering a couple of hundred questions.

"If I were single, I would be using a service like eHarmony, but with my eyes wide open," Dr. Reis said. "Anybody who thinks eHarmony really knows what's best for you is making a big mistake. But it is providing access to people who are really interested in a relationship instead of just gaming. I'd tell myself I'll meet 100 women in the next six months, and if I find one, then I'm happy. Where else can I meet 100 women?"