

Rapid Communication

More Options Lead to More Searching and Worse Choices in Finding Partners for Romantic Relationships Online: An Experimental Study

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Abstract

It is not surprising that the Internet has become a means by which people expand their social networks and form close relationships. Almost every online-dating Web site provides members with search tools. However, do users truly benefit from more complete searches of a large pool of possibilities? The present study, based on the cognitive perspective, examined whether more search options triggered excessive searching, leading to worse choices and poorer selectivity. We argue that more search options lead to less selective processing by reducing users' cognitive resources, distracting them with irrelevant information, and reducing their ability to screen out inferior options. A total of 128 Taiwanese late adolescents and adults with experience in online romantic relationships participated in an experimental study. After entering the characteristics they found desirable in a partner in such a relationship, participants were randomly assigned to receive one of three levels of available profiles. The dependent measures consisted of the number of profiles searched, the average preference difference for all profiles viewed, the preference difference for the chosen profile, and the degree of selectivity. These measures were used to determine whether more attention was devoted to better alternatives and less attention to worse alternatives. The data supported the predictions. Implications and directions for further research are discussed.

Introduction

EVEN IN THE AGE OF THE WEB and e-commerce, online social interactions are the predominant reason for Internet use.¹ As online social and personal relationships become more prevalent,² it becomes increasingly important for social psychologists to examine how people select and build interpersonal romantic relationships in cyberspace. Previous studies of online romantic relationships have focused on the prevalence and demographics of Internet users,³ the quality of relationships,⁴ predictors of relationship satisfaction,⁵ and the psychological correlates of users.^{6,7} However, there has been little research from a cognitive perspective on how Internet users select cyber friends for romantic relationships. Currently, almost every online-dating Web site provides search tools with which members browse and evaluate the profiles of cyber friends in an ordered way. These tools ap-

pear to reduce the users' efforts and make good predictions about the fit of a potential partner to their preferences. For the users of online-dating Web sites, such tools may be vital for them to truly benefit from the enormous selection of options available online.⁸ Therefore, it is important to understand how an ordered list of profiles from the use of search tools in online-dating Web sites affects the users' searches and choices. Prior research has shown that search tools can benefit consumers in online shopping.⁹ However, extended to the context of searching partners for online romantic relationships, the present study showed that a larger number of recommended profiles were actually detrimental in an ordered search. More specifically, the temptation to search might reduce the choice quality by reducing the average quality of the consideration set in a way that is not compensated by increased selectivity.

Additional searching should not leave users of the Web

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site worse off, because they can always stop searching or ignore bad options they have already viewed. However, important cognitive processes may occur in an ordered search, hindering choice quality. First, searching through more options may lead users to accelerate processing by reducing the amount of time spent on each alternative profile. Such self-induced time pressure can lessen users' ability to distinguish between better and worse options.¹⁰ Second, more searching may reduce users' cognitive resources. When cognitive resources are low, individuals may not be able to ignore irrelevant information.¹¹ Third, the cognitive load may induce users to compromise by sacrificing some of the traits they desired, further reducing selectivity among options.¹²

In the current context, selectivity refers not only to differential degrees of attention but also to whether attention is directed appropriately, given the users' preferences. That is, users of online-dating Web sites who devote more attention to better alternatives and less attention to worse alternatives show greater selectivity and should be better able to exclude poorer options. However, more searches can reduce users' selectivity, which lessens their ability to discern superior options from the consideration set. Choice will be influenced by the average quality of the considered options and not by the maximum quality of the available options; thus, additional searching from ordered lists often leads to worse choices.

Methods

Participants and design

The participants were 128 youths and adults from southern Taiwan (69 men, 59 women; ages 18 to 36 years, $M = 25.53$, $SD = 4.82$) who had membership in online-dating Web sites, as determined on a screening questionnaire. They were recruited from the subject pool of an online-gaming addiction survey supported by the National Science Council of Taiwan.¹³ Participants were assigned to view one of three numbers of available options—large, moderate, or small—according to a factorial design. The number of available options was manipulated between participants.

Procedure

This study was described as an experiment on "Finding Your Best Partner for a Romantic Relationship!" in order to disguise the actual purpose. Participants were asked to search for their most desirable romantic partner via the search tool of an online-dating Web site through Yahoo Taiwan. Yahoo Taiwan was selected because it is the most popular online-dating Web site in Taiwan. It also offers a "match index" on a 100-point scale to describe the compatibility between the participant and the chosen option. Each participant entered the characteristics of his or her ideal partner in terms of 16 conditions (i.e., age, height, weight, educational level, vocation, smoking habits, drinking habits, religion, geographical area, astrological sign, blood type, appearance, personality, interests, travel preferences, and cuisine preferences).

Participants then saw a list of recommended partners given by the search engine. The list is characterized by brief titles and nicknames, forcing participants to view the entire profile of a recommended partner to assess goodness-of-

match. Participants read the explanation of the search engine's ranked list of recommended partners: "The available subjects are ranked from best to worse according to how closely the site's search tool thinks a subject will match your desirable characteristics. The list is not perfectly accurate, of course, but subjects earlier in the list are, on average, screened by the search tool as a better fit than those later in the list." Participants were randomly assigned to view one of three numbers of available profiles (i.e., the top 30 rankings from the recommended list, the top 60, or the top 90). They were asked to review a specific number of available profiles to choose their target partner for a romantic relationship.

Participants were given sufficient time to review the available profiles of recommended partners. After viewing the profile of a given subject, participants could either go back to the list or select that subject as their final choice for Mr. Right or Miss Right. The experiment was conducted with an average of three participants per session. Participants were seated at least one seat apart in order to reduce distraction. After the choice of a target subject was made, participants were given the background information of this experiment.

Number of available options

The recommended list screened by the search engine always provided hundreds of subjects. However, a preliminary survey before the formal experiment ($N = 78$) indicated that users of online-dating Web sites generally would not review more than 100 profiles during a single search session for online romantic relationships. Hence, we used three numbers of available options: small number = top 30 ranking subjects, moderate number = top 60 rankings, and large number = top 90 rankings. The monitor server in the laboratory ensured that participants followed the search constraints required under each experimental condition.

Regarding the manipulation check, participants were asked to rate the perceived number of available options they received on a 9-point scale from *very few* (1) to *very many* (9). A linear trend showed that the manipulation of the number of available options was satisfactory, indicating that participants perceived the large number condition ($M = 6.70$, $SD = 0.81$) to have the highest number of available options, the small number condition ($M = 2.26$, $SD = 1.11$) to have the lowest number of available options, and the moderate number condition ($M = 4.74$, $SD = 1.22$) to have a midrange level of number of available options, $F(1, 126) = 377.89$, $p < 0.001$, $\eta^2 = 0.79$.

Dependent measures

First, the amount of searching was measured as the number of unique subjects' profiles examined, in order to determine whether providing more options triggers more searching. Second, the true goodness-of-match of each target option was determined by the differences between the scores of each participant's most desired characteristics and the characteristics of the selected option. Possible scores for this preference difference ranged from 0 to 16, because we employed a dichotomous scale (0 = match; 1 = mismatch) for each of the 16 characteristics. Greater preference differences represent worse choices. Two kinds of preference differences, the average preference difference for all viewed options and the

TABLE 1. MEANS AND STANDARD DEVIATIONS OF THE MEASURES

	<i>Number of available options</i>											
	<i>Small</i>				<i>Moderate</i>				<i>Large</i>			
	<i>(No. of options = 30)</i>				<i>(No. of options = 60)</i>				<i>(No. of options = 90)</i>			
	<i>Male</i>		<i>Female</i>		<i>Male</i>		<i>Female</i>		<i>Male</i>		<i>Female</i>	
	<i>(n = 23)</i>		<i>(n = 23)</i>		<i>(n = 23)</i>		<i>(n = 20)</i>		<i>(n = 23)</i>		<i>(n = 20)</i>	
	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>
Number of options searched	19.09	2.23	17.75	1.12	35.96	2.93	37.75	3.11	51.22	4.25	51.25	4.01
Average preference difference	4.17	0.89	4.50	1.15	6.39	1.16	6.00	0.73	8.61	0.78	9.10	0.72
Preference difference for the chosen option	5.65	1.30	5.01	1.03	7.26	1.71	7.25	0.45	9.22	0.80	8.02	0.73
Selectivity	0.83	0.25	0.78	0.20	0.61	0.17	0.65	0.21	0.38	0.11	0.43	0.14

Preference differences ranged from 0 (complete match) to 16 (complete mismatch) according to the sum of 0 (match) or 1 (mismatch) scores for each of the 16 characteristics.

Selectivity was measured using each participant's time spent inspecting a profile regressed on the match score (0 = complete mismatch, 16 = perfect match) for that subject. More positive regression coefficients represent greater selectivity.

preference difference for the chosen option, were calculated. Finally, the selectivity measure determined whether more attention was devoted to better alternatives and less attention to worse alternatives. For each participant, the time spent reviewing an option (in minutes, recorded to two decimal places) was regressed on the "match score" for that option. The match score was computed by the sum of match characteristics of a subject rated on a dichotomous scale (0 = mismatch; 1 = match; possible scores ranged from 0 to 16). More positive unstandardized regression coefficients indicate that a participant spent more time evaluating the options with high goodness-of-match scores, implying better selectivity. For example, the mean coefficient of male participants under the condition of the small number of available options was 0.83. It suggests that for a one-unit increase in the match score of an option, they spent approximately 0.83 minutes longer evaluating that option.

Results

Participants' performance in terms of the three dependent measures (number of options searched, average preference difference for the viewed options, and the preference difference for the chosen option; see Table 1) were submitted to a 3×2 (number of available options: small, moderate, or large number of options \times gender: male or female) between-participants model. Two-way interactions of the three dependent measures were not significant, which indicated that the effect of the number of options on these measures did not differ between male and female participants for the number of subjects searched, $F(2, 123) = 2.68, p > 0.05$, the average preference difference for the viewed options, $F(2, 123) = 2.76, p > 0.05$, and the preference difference for the chosen option, $F(2, 123) = 3.21, p > 0.05$.

Regarding the number of options searched, a robust main effect of the number of available options was observed, $F(2, 123) = 1178.97, p < 0.001, \eta^2 = 0.89$. Further analysis indicated that more subjects' profiles were examined as more options were provided, revealing that the number of options searched was greatest under the condition of the large number of available options (i.e., top 90 subjects; $M = 51.23, SD =$

4.09), smallest under the condition of the small number (i.e., top 30 subjects; $M = 18.47, SD = 1.91$), and midrange under the condition of the moderate number (i.e., top 60 subjects; $M = 36.79, SD = 3.21$), $F(1, 126) = 2305.74, p < 0.001, \eta^2 = 0.95$.

Similar patterns were also found in the main effects of the available options on both the average preference difference for the examined options, $F(2, 123) = 258.25, p < 0.001, \eta^2 = 0.81$, and the preference difference for the chosen option, $F(2, 123) = 95.93, p < 0.01, \eta^2 = 0.61$. Further analysis indicated that the average preference difference was greatest when the number of available options was large ($M = 8.84, SD = 0.78$) and smallest when the number was small ($M = 4.33, SD = 1.02$), with the moderate number of options in between ($M = 6.21, SD = 1.01$), $F(1, 126) = 499.38, p < 0.001, \eta^2 = 0.78$. The preference difference for the chosen option was greatest when the number of available options was large ($M = 8.65, SD = 0.97$) and smallest when it was small ($M = 5.35, SD = 1.21$), with the moderate number in between ($M = 7.26, SD = 1.27$), showing a linear trend, $F(1, 126) = 174.07, p < 0.001, \eta^2 = 0.58$. In addition, gender differences were not observed in the number of options searched, $F(1, 123) = 0.10, p > 0.05$, or in the average preference difference for the examined options, $F(1, 123) = 0.76, p > 0.05$. However, male participants' preference difference for the chosen option ($M = 7.38, SD = 1.96$) was greater than that of female participants ($M = 6.75, SD = 1.49$), $F(1, 123) = 10.39, p < 0.01, \eta^2 = 0.08$.

In the context of this experiment, selectivity refers to whether more attention (in terms of time) is allocated to better alternatives, and increased selectivity is indicated by more positive individual regression coefficients. Participants' individual coefficients were submitted to a 3×2 (small, moderate, or large number of options \times male or female) between-participants model (see Table 1). A gender difference was not found in the selectivity index, $F(1, 123) = 499.38, p > 0.05$. As predicted, participants' selectivity was affected by the number of available options, $F(1, 123) = 49.53, p < 0.001, \eta^2 = 0.45$. Further analysis indicated that more available options led to less selectivity, revealing a pattern that participants' selectivity was greatest when the number of available options was small ($M = 0.80, SD = 0.23$),

least when the number of options was large ($M = 0.40$, $SD = 0.13$), and midrange when the number was moderate ($M = 0.63$, $SD = 0.19$), $F(1, 126) = 101.39$, $p < 0.001$, $\eta^2 = 0.45$.

Discussion

The search tools of online-dating Web sites are often advertised in terms of the size of their assortments, in the expectation that users will find a better preference match from large sets of recommended options. However, this research demonstrated that more options triggered more searching and decreased choice quality. More options triggered additional searches, thus partially undoing the effort-saving benefit of search tools. This finding was congruent with those in prior research.⁹ As already argued, large consideration sets lead to less selective processing and reduce searchers' ability to screen out inferior options. From the perspective of cognitive processing, considering a large set of options may increase cognitive load, leading individuals to make mistakes.¹⁴ In addition, when searchers' cognitive resources are reduced by more searches, they will be less likely to ignore irrelevant information and more likely to be distracted or attracted by attributes that were not pertinent to their original preferences.¹¹ Data in selectivity analysis reveals that searching through more options may result in less amount of time spent on each alternative profile. The reduction of average cognitive resources spent on each option seems to explain why worse selection will be made under more searches. In sum, the users of online-dating Web sites should gain insight into their own cognitive processing in finding partners for online romantic relationships and tailor their decision-making criteria to the search tools.

In terms of limitations of the study and future research directions, the different factors mentioned earlier may account for why excessive searching leads users to make poorer choices from a larger consideration set. However, the present study cannot ascertain which cognitive processes prevent scrutiny or divert attention to worse options. Future research should investigate which of these cognitive processes contributes to the observed phenomenon. In addition, the results showed that male participants' preference difference was more prominent than that of females. This suggests that, compared to females, male users of online-dating Web sites are more vulnerable to the negative effects of providing too many choices. Further investigations should shed light on gender differences in choosing partners for online romantic relationships.

In conclusion, the search tools of online-dating Web sites provide users with a convenient way to search for partners in building and developing romantic relationships online. The concept behind these tools is that users will find a better match with regard to their preferences from large quantities of options. It is important to systematically investigate how the characteristics of such search tools affect users' choices. Besides the benefits of effort-saving searches, overabundant options could constitute a double-edged sword, because providing more options could lead to worse decisions by encouraging the consideration of less compatible options. Based on the cognitive perspective, the present study showed that more options induced more searching, leading to worse choices and less selectivity. The users of online-dating Web sites should pay more attention to the neg-

ative consequences of too many choices. An excess of choices provided by the search engines of online-dating Web sites can cause users to be caught in the "web" instead of fishing with a "net."

Disclosure Statement

The authors have no conflict of interest.

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