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The Similarity-Attraction Link: Sequential versus Parallel Multiple-Mediator Models involving Inferred Attraction, Respect, and Positive Affect

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Abstract

The authors tested the hypothesis that the attitude similarity effect also spreads sequentially through the mediators of positive affect, respect, and inferred attraction to interpersonal attraction. In Experiment 1, participants received information about a partner's similar or dissimilar attitudes and reported only one of the three mediators before attraction. The similarity-attraction link was mediated by positive affect or respect but more strongly by inferred attraction. In Experiment 2, the three mediators were measured in six different orders. Results falsified parallel and combined parallel-sequential multiple-mediator models and two of the fully sequential multiple-mediator models but supported four fully-sequential models that were consistent with the affect-centered and affect primacy hypotheses.

Key words: affect primacy, appraising acceptance, attraction, multiple-mediation, sequential mediation, similarity

Introduction

It has been shown repeatedly that the greater the similarity between attitudes of two persons, the greater is the attraction between them (e.g., Byrne, 1961, 1971, 1997; Condon & Crano, 1988; Montoya & Horton, 2013; Montoya, Horton, & Kirchner, 2008; Singh & Ho, 2000). This attitude similarity-attraction link (SAL) holds across different age and cultural groups (Byrne & Griffitt, 1966a; Tan & Singh, 1995) and diverse measures of attraction (Michinov & Monteil, 2002; Singh, Ng, Ong, & Lin, 2008). Nevertheless, controversy continues with regard to *which* variables mediate the SAL and *how* they do so (Montoya & Horton, 2012, 2013, 2014; Singh, Yeo, Lin, & Tan, 2007). In this research, therefore, the authors investigated not only the mediation of the SAL by each of the three known variables discussed below but also their causal sequence.

Mediators of the SAL

For simplicity in exposition throughout this article, we refer to a measured variable reliably weakening the effect of attitude similarity (the independent variable: IV) on attraction (the dependent variable: DV) as a mediating variable (MV) (Baron & Kenny, 1986), and a conceptualization of *how* the multiple MVs transmit the IV effect to the DV as a multiple-mediators model (Preacher & Hayes, 2008). In a multiple-mediator model, moreover, the MVs may operate in *parallel*, independent of each other, or in *sequence*; that is, the preceding MV may influence the succeeding one.

Positive affect. According to Byrne and Clore (1970), attitude similarity induces *positive affect* in the participants which simply gets associated with the partner. This mediator of the SAL was originally supported by two chains of causal evidence: (a) The IV of attitude similarity influenced the MV of affect (Clore & Gormly, 1974; Singh, 1974), and (b) manipulated affect influenced the DV of attraction (Bell & Baron, 1974; Gouaux, 1971; Griffitt, 1970). Consistent with Baron and Kenny's (1986) conceptualization of mediation, the SAL was subsequently found to be significantly weakened when the measure of affect was simultaneously assessed as a predictor of attraction (Singh, Yeo et al., 2007, Experiment

Inferred attraction. Aronson and Worchel (1966) proposed that similar attitudes lead people to infer that the partner would like them; dissimilar attitudes, in contrast, lead to the opposite inference of dislike. Attraction is a mere reciprocation of the inferred like or dislike.

The mediating role of inferred attraction in the SAL is supported by five lines of evidence. First, partners' evaluations, including liking for the participants, influence attraction (Byrne & Griffitt, 1966b; Byrne & Rhamey, 1965; Clore & Baldridge, 1970; Singh, 1974). Second, inferred attraction increases as attitude similarity increases (Insko, Thompson, Stroebe, Shaud, Pinner, & Layton, 1973). Third, the SAL is stronger when attitude similarity is presented alone than when it is presented along with explicit evaluations of the participants by the partner (Insko et al., 1973, Experiment 1). Fourth, the SAL is stronger with participants who infer that the dissimilar partner would dislike them and the similar partner would like them than with those who infer that the partner would be ambivalent toward them (Insko et al., 1973, Experiment 2). Finally, the SAL is weakened when the effect of inferred attraction is statistically controlled (Condon & Crano, 1988).

Respect. Montoya and Horton (2004) proposed that attitude similarity influences the perceived qualities of the partner as a person. The cognitive evaluation of the partner (i.e., respect for him or her¹) mediates the SAL. Supporting this view, the SAL has been found to be stronger when participants first express their respect for the partner than when they indicate attraction before respect (Montoya & Horton, 2004; Singh, Ho, Tan, & Bell, 2007). Importantly, the SAL was weakened when the effect of respect was statistically controlled (Montoya & Horton, 2004).

Multiple mediators. When Singh, Yeo et al. (2007) measured all of the three aforementioned MVs together, attitude similarity had positive effects on the MVs and the DV. Each MV also had a positive relation with the DV when analyzed as the only mediator. Surprisingly, however, the regression coefficient for positive affect took on a negative sign when attitude similarity and the other two MVs were simultaneously used as predictors of attraction. The three mediators were measured in two different orders: positive affect-inferred attraction-respect and inferred attraction-positive affect-respect.² To explain the anomalous partialed relations between positive affect and the DV, the authors examined the mediation of the IV effect on each relevant response by the preceding one. When positive affect was measured first, positive affect mediated the IV effect on inferred attraction, the proximal succeeding variable, but not on respect and respect mediated the IV effect on attraction. When inferred attraction was measured first, positive affect mediated the IV effect on the IV effect on respect attraction. When inferred attraction was measured first, positive affect mediated the IV effect on respect mediated the IV effect on respect, the proximal succeeding variable, but not on attraction, the distal succeeding variable. These results suggested

a *sequential mediation* in which"... [positive] affect transmitted the [attitude similarity] effect from its preceding variable to the succeeding one"(p. 71) and then became inconsequential.

Singh, Ng et al. (2008) contrasted mediation of the SAL by positive affect with that by inferred attraction in Experiment 1 and compared respect with inferred attraction in Experiment 2. The effect of positive affect on attraction was positive instead of negative (as when Singh, Yeo et al., 2007, used all three MVs to predict attraction). Inferred attraction was a stronger mediator than either positive affect or respect. Collectively, these results argue for multiple mediators of the SAL and against any single MV (Rucker, Preacher, Tormala, & Petty, 2011) as was originally envisaged (Aronson & Worchel, 1966; Byrne & Clore, 1970; Montoya & Horton, 2004).

Weakness, inconsistency, and possible resolution. Singh and his associates (Singh, Ng et al., 2008; Singh, Yeo et al., 2007) succeeded in showing mediation of the SAL by positive affect, respect, and/or inferred attraction. However, they did not examine the goodness of fit of the *parallel multiple-mediator model* tested (see top diagram for Model 1 in Figure 1) to the data reported. Consequently, the issue of *how* well the MVs represented the SAL remained rather under-specified until the present research.

The seeming redundancy of positive affect in the tested *parallel multiple-mediator model* led Montoya and Horton (2012, 2013, 2014) to question the role of affect in attraction but propose the two cognitive MVs of respect and inferred attraction as sufficient for the SAL. To us, however, the inconsistent effects of positive affect when predicting attraction in the *parallel multiple-mediator model* versus predicting the other MVs points out the potential merit of a *sequential multiple-mediator model*. Recall that positive affect had reliably transmitted the causal effect from its preceding IV or MV to the succeeding MV in post hoc analyses -- as if the MVs were sequentially linked (Singh, Yeo et al., 2007). Given the evidence that the three MVs were correlated, a suitable sequential multiple-mediator model may not only adequately represent the SAL but also reaffirm the role of affect in attraction.

Sequential Multiple-Mediator Models

Affect-centered models. Baron, Byrne, and Branscombe (2006) proposed an *affect-centered model* of attraction that combined parallel mediation by respect and inferred attraction with sequential mediation by positive affect. As can be seen in Model 2 of Figure 1, positive affect has a direct path from the IV, as in Model 1, plus two sequential paths from the preceding

cognitive processes of inferred attraction and respect also activated by the same IV. Thus, positive affect elicited by the IV is further mediated by the two preceding cognitive processes activated by the very same IV. To the best of our knowledge, Model 2 of the combined parallel-sequential multiple-mediators has also remained heretofore unexamined.

We argue for placing inferred attraction before respect as in Model 3 of Figure 1. Findings from attraction research agree to this proposal. People express attraction to those who seem to be attracted to them (Aronson & Worchel, 1966; Byrne & Griffitt, 1966b; Byrne & Rhamey, 1965; Insko et al., 1973; Montoya & Horton, 2012; Montoya & Insko, 2008; Singh, Ho et al., 2007; Singh, Lin, Tan, & Ho, 2008). In contrast, respect for the competence of the partner results in attraction only when there is no seeming threat to the participant's self-esteem (Herbst, Gaertner, & Insko, 2003; Montoya & Horton, 2004; Singh & Teoh, 2000). . Collectively, these results place respect proximal to inferred attraction as mediators of the SAL. Therefore, we hypothesize that the similarity effect also spreads from inferred attraction to respect and then to the positive affect that is conditioned to the partner (Baron et al., 2006). Model 3 of Figure 1 displays this affect-centered sequential multiple-mediator model. Another version of this affect-centered model can be constructed by placing respect before inferred attraction (Model 3A) but that possibility is not as well supported by the extant literature.

Affect primacy models. Given the evidence for affect primacy in evaluative responses (Zajnoc, 1980, 2000), it is also possible that the attitude similarity effect may spread from positive affect to respect and eventually to inferred attraction as in Model 4 of Figure 1. Two lines of evidence suggest this alternative to Model 3. First, the correlation between inferred attraction and attraction is consistently higher than that between respect and attraction or positive affect and attraction (Singh, Ng et al., 2008; Singh, Yeo et al., 2007). Such patterns in correlation imply close proximity between inferred attraction and attraction (McWhirter & Jecker, 1967). Second, when included in a multiple-mediation model alongside inferred attraction, positive affect and respect, are weaker mediators of the SAL (Singh, Ng et al., 2008; Singh, Yeo et al., 2007). A stronger indirect effect of attitude similarity via inferred attraction may arise from a strong effect of inferred attraction *per se* plus its additional strengthening by the preceding positive affect and respect activated by the same IV. In this view, attraction is a reciprocation of the enhanced inferred attraction (Condon & Crano, 1988). Another version of this affect primacy model (Model 4A) can be constructed by placing inferred attraction before respect as in Model 3.

Inconsistent models. The foregoing four sequential multiple-mediator models placed affect either after or before the two cognitive variables. Structurally, Models 3 and 3A regard attraction as affect-centered (Baron et al., 2006) but Models 4 and 4A accord primacy to affect (Zajonc, 1980) in attraction. Placing positive affect between the two cognitive variables of respect and inferred attraction that are regarded as sufficient for representing the SAL (Montoya & Horton, 2014) should, therefore, result in two sequential multiple-mediator models (Model 5: inferred attraction \rightarrow positive affect \rightarrow respect; Model 6: respect \rightarrow positive affect \rightarrow inferred attraction) that seem less consistent with the previous data.

The Present Research

To evaluate the foregoing eight multiple-mediator models -- one parallel (Singh, Yeo et al., 2007), one combined parallel-sequential (Baron et al., 2006), and six fully sequential (2 versions of affect-centered, affect primacy, and inconsistent) -- of the SAL, we performed two experiments. In Experiment 1, each participant was presented with a measure of one and only one of the three MVs. We did so to show the mediation of the SAL by each MV measured alone before investigating how they jointly mediate the SAL. Given the encouraging mediation results of Experiment 1, in Experiment 2 we measured all three MVs in six possible orders before attraction to choose the best fitting multiple-mediator models.

EXPERIMENT 1

Condon and Crano (1988), Monotoya and Horton (2004), and Singh, Yeo et al. (2007, Experiment 1) each showed the mediation of the SAL by single measured variables— specifically, attraction, respect, and positive affect. However, direct comparisons across these studies are complicated by the use of different measures of the MV and the DV and by differences in the participant populations. Besides, no subsequent study addressing the multiple mediators has first examined each of the three MVs singly (Singh Ng et al., 2008; Singh, Yeo et al., 2007). Accordingly, we first perform Experiment 1 to ensure that each of the three MVs does significantly mediate the attitude similarity effect on attraction. We use uniform 4-item measures of the MVs and the DV.

Method

Participants and mediator conditions. Participants were 90 male and 90 female students from an introductory psychology module at the National University of Singapore. We randomly assigned them to one of three conditions (Ns = 60) in which one of the three mediators (positive

affect, respect, or inferred attraction) was measured before attraction. Thus, the experimental design was a 3 (Mediator: affect, respect, or inferred attraction) x 2 (Attitude similarity: dissimilar vs. similar) factorial.

Attitude survey. Participants first completed a 12-item attitude survey. The 12 controversial issues (e.g., *interracial marriage, undergraduates getting married, vehicle quota system, etc.*) were the same as in the previous studies (Singh, Ho et al., 2007; Singh, Yeo et al., 2007). Attitude toward each issue was expressed by checking one of six evaluative statements (e.g., *strongly approve the position, moderately approve, slightly approve, and slightly, moderately, or strongly disapprove it*; Byrne, 1971).

Experimental booklet. Based on the responses to the previously completed attitude survey, we prepared a separate experimental booklet for each participant. The booklet contained a bogus partner attitude survey and the measures of the MV and the DV.

We used the method of constant discrepancy (Byrne, 1971) in manipulating attitude similarity between the participant and the partner. Similar attitudes of the partner were on the same side and just one statement away from the participant's own responses. In contrast, dissimilar attitudes of the partner were three statements away from the participant's own responses and on the opposite side of the scale. This method of manipulating similarity was the standard in past research (Singh & Ho, 2000).

The second part of the booklet consisted of a measure of one of the MVs and a common *Interpersonal Attraction Questionnaire* that included four items assessing attraction (*I would like to meet my partner; … look forward to meeting my partner; … look forward to working with my partner;* and *… like to get to know this person better*) and six filler items. Notably, the attraction items asked for the participant's *inclination* to meet with the person, know the person more, and work with the person, and hence tapped *behavioral attraction* (Michinov & Monteil, 2002; Montoya & Insko, 2008).

Positive affect was measured by responses to the positive affect scale of the Positive and Negative Affect Schedule (PANAS, Watson, Clark, & Tellegen, 1988). Participants rated their immediate feelings using 10 adjectives along a 5-point scale, anchored by 1 (*very slightly or not at all*) and 5 (*extremely*). In order to equate the number of items used to measure each MV, we scored responses to the *active, attentive, determined*, and *inspired* items that overlapped with the

interest and *activation* dimensions of positive affect (Egloff, Schmukle, Burns, Kohlmann, & Hock, 2003). This decision was also guided by the evidence for cross-cultural invariance of these items, and their higher factor loadings on positive affect (Thompson, 2007).

Respect for the partner was assessed by four items from the *Interpersonal Inference Scale* (My partner *would make a good leader;... will achieve all of his/her goals; ... is probably good at everything that s/he does;* and ... *will probably be successful in life.*). These items were the same as those used by Montoya and Horton (2004). Inferred attraction of the partner toward the participant was assessed by the four-item *Self Judgment Scale* (My partner *could help me accomplish my goals; ... will like me; ... will enjoy working together with me;* and ... *will care for me.*). The attraction, inferred attraction, and respect items were paired with 7-point scales, anchored by 1 (*strongly disagree*) and 7 (*strongly agree*).

Procedure: In the first session, participants completed an attitude survey in small groups, and signed up for an interaction study scheduled for the next week. In the second session, a male experimenter met them in small groups. In each such session, he told the participants that (a) they would be in an interaction session with another same age-sex peer; (b) two of them would be "working together later as partners in a project;" and (c) the first task was to form an opinion of the "upcoming interaction partner." He further told them that the basis for judging the partner would be his or her attitude survey completed earlier.

Participants examined the simulated attitude survey that had removed the partner's background information, formed an opinion of the stranger for 1 min, and then answered the items that followed in the booklet. The initial responses by the participants were either ratings of their own immediate feelings, respect for the partner, or inferences of how attracted the partner would be to them. Attraction to the partner was always the last variable measured. After collecting the completed booklets, the experimenter informed the participants that there was no interaction session scheduled. He ended the session with a full debriefing.

Results

Construct distinction. To examine the distinction between the DV of attraction and the MV of positive affect, inferred attraction, or respect, we first performed separate two-factor and single-factor confirmatory factor analyses (CFAs) on the eight responses to the mediator and DV in each of the three mediator conditions in AMOS (Ns = 60). The two-factor model yielded a

better fit to the data when positive affect was the mediating variable: $\chi^2(19) = 37.12$, p = .008, non-normed fit index/Tucker-Lewis index (NNFI/TLI) = 0.89, incremental fit index (IFI) = 0.93, root mean square error of approximation (RMSEA) = .13, standardized root mean residual (SRMR) = .06, than did the single-factor model, $\chi^2(20) = 61.05$, p < .001, NNFI/TLI = 0.77, IFI = 0.84, RMSEA = .19, SRMR = .09. The drop in the chi-square fit from the two-factor model to the single-factor model was statistically significant, $\chi^2_{\Delta}(1) = 23.93$, p < .001. As a result, we adjudged positive affect as distinct from attraction.

The two-factor model also yielded a better fit to the data when respect was the mediator: $\chi^2(19) = 34.83$, p = .02, NNFI/TLI = 0.89, IFI = 0.93, RMSEA = .12, SRMR = .07, compared with the single-factor model, $\chi^2(20) = 65.59$, p < .001, NNFI/TLI = 0.71, IFI = 0.80, RMSEA = .20, SRMR = .10 [$\chi^2_{\Delta}(1) = 30.76$, p < .001]. Likewise, the two-factor model yielded a better fit to the data when inferred attraction was the mediator: $\chi^2(19) = 42.06$, p = .002, NNFI/TLI = 0.92, IFI = 0.95, RMSEA = .14, SRMR = .12, compared with the single-factor model, $\chi^2(20) = 107.08$, p < .001, NNFI/TLI = 0.72, IFI = 0.80, RMSEA = .27, SRMR = .17 [$\chi^2_{\Delta}(1) = 65.02$, p < .001]. Thus, we regarded attraction as distinct from respect and from inferred attraction.

Reliability and correlation coefficients. We checked reliability of the measures by Cronbach alpha (α). We averaged responses to the four scale items to yield the scores that ranged from 1 (*lowest*) to 5 (*highest*) along the positive affect measure and from 1 (*lowest*) to 7 (*highest*) along the remaining measures. The top of Table 1 lists the α s, means, and standard deviations (*SD*s) of the mediator and attraction responses to attitude similarity from the three mediator conditions. Attraction correlated positively with affect, r(58) = .63, respect, r(58) = .59, and inferred attraction, r(58) = .72, all ps < .01.

Similarity effects. Mean differences between the similar and dissimilar attitude conditions for the DV and all MVS were tested with independent-group t tests. Table 1 reports the ts, ps, and effect size rs of the responses.

As can be seen, all responses were higher when the partner had similar rather than dissimilar attitudes, replicating the previous results. There was no moderation of the size of the SAL by the mediator measured.

Mediation analyses. Because of the two levels of attitude similarity, we treated the IV as a categorical variable with codes of 0 and 1 for the respective conditions of dissimilar and similar

attitudes. We performed mediation analysis, using Preacher and Hayes' (2008) SPSS macro. The macro simultaneously estimated (a) the IV effect on the MV; (b) the MV effect on the DV; (c) the total effect of the IV on the DV; and (c') the direct effect of the IV when the MV also predicted the DV. The output also provided the bias corrected 95% confidence intervals (CI) around the indirect effect of the IV via the MV from 5000 nonparametric bootstrap re-samples. We adjudged an indirect effect to be significant only if its bias corrected 95% CI excluded zero. Further, we used the proportion of total effect accounted for by an indirect effect as an index of its absolute effect size (MacKinnon, 2008).

Table 2 lists the unstandardized regression coefficients from the three mediation analyses. Notably, positive affect, respect, and inferred attraction each reliably mediated the SAL. The absolute size of the indirect effect via inferred attraction was nearly two times larger than that of positive affect or respect.

Discussion

Results of Experiment 1 show that positive affect, respect, and inferred attraction are each empirically distinguishable from attraction. As hypothesized and found previously, each variable mediates the SAL. Moreover, inferred attraction is a stronger mediator than positive affect or respect (when comparing the raw size of each single-mediator effect, rather than measuring the mediators together and examining effects of each mediator controlling for the others). Convergent mediation results from our new measures and from those used in the past studies are encouraging for undertaking tests between the parallel, combined parallel-sequential, and fully sequential multiple-mediator models. Also, the stronger mediational effects of inferred attraction than of positive affect or respect (and stronger correlations of inferred attraction with attraction) suggest that inferred attraction might serve as a more proximal mediator than positive affect or respect (i.e., might fall closer to attraction in a model of sequential mediation). Thus, we performed Experiment 2.

EXPERIMENT 2

We pursued four goals in Experiment 2. One was to confirm the distinction between the constructs of positive affect, respect, inferred attraction, and attraction when they are measured together. Another was to confirm the mediational pattern found in Experiment 1. Specifically, inferred attraction should be a stronger MV than positive affect or respect. Still another goal was to test a set of eight possible parallel, combined parallel-sequential, and fully sequential multiple-

mediator models of the SAL. The final goal was to show that the causal flow was from inferred attraction to attraction as posited by the sequential multiple-mediator models, and not from attraction to inferred attraction. Such demonstration was methodologically important because the stronger relationship between attraction and inferred attraction could also be attributable to the overlap between the items used to measure the two constructs.

Method

Design and participants. The design was a 6 (order of mediator measurement: OMM) x 2 (attitude similarity: dissimilar *vs.* similar) between-participants factorial. We randomly assigned 192 male and 192 female participants from the same population as in Experiment 1 to one of the 12 cells formed by the OMM x Attitude similarity design (ns = 32 per ell).

Because the models posit potency differences among the MVs, we measured them in the following six OMMs:

- 1. Positive affect respect inferred attraction;
- 2. Positive affect inferred attraction respect;
- 3. Respect positive affect inferred attraction;
- 4. Respect inferred attraction positive affect;
- 5. Inferred attraction positive affect respect; and
- 6. Inferred attraction respect positive affect.

The three MVs were measured twice at the first, second, and last orders. Thus, there was no confounding of the effect of the MV with the OMM. Further, Model 2 in Figure 1 posits parallel occurrence of inferred attraction and respect and their subsequent mediation effects on positive affect. Because it was not possible to tap the two preceding MVs simultaneously, we measured inferred attraction and respect in counterbalanced orders and before positive affect. That made the data from OMMs 4 and 6 ideal for testing Model 2.

Materials and procedure. The manipulations, measures, and procedure were the same as those in Experiment 1. However, the booklet contained the MVs in one of the six OMMs before the attraction measure. Every session ended in the same way as in Experiment 1.

Results

Construct distinction. We tested the distinction between the DV of attraction and the MVs of positive affect, respect, and inferred attraction by performing separate four-factor and single-factor CFAs on the 16 responses. The four-factor measurement model yielded a better fit to the data, $\chi^2(98) = 271.76$, p < .001, NNFI/TLI = 0.93, IFI = 0.95, RMSEA = .07, SRMR = .04, than did the single-factor model, $\chi^2(104) = 908.70$, p < .001, NNFI = 0.71, IFI = 0.75, RMSEA = .14, SRMR = .10 [$\chi^2_{\Delta}(6) = 636.94$, p < .001].

Reliability and correlation coefficients. As reported in the bottom part of Table 1, responses to the positive affect, respect, inferred attraction, and attraction items formed reliable scales. Respect and inferred attraction were highly correlated, r(382) = .71, p < .01, and both had a moderate correlation of .32 with positive affect, p < .01. The correlation between attraction and each of the three MVs of positive affect, respect, and inferred attraction steadily increased, r(382) = .34, .61, and .71, respectively, ps < .01. Thus, the MVs and the DV were *correlated but distinct* constructs.

Preliminary analyses. The OMM did not moderate the IV effect on any of the four responses. However, it had a significant main effect on inferred attraction, F(5, 372) = 2.93, p = .01, $\eta^2_p = .04$. Post hoc comparisons among means by Tukey's *HSD* test revealed that inferred attraction was higher when it was measured first (OMM 6: M = 4.25, SD = 1.01) than when it was measured after positive affect (OMM 2: M = 3.77, SD = 0.99). As this result did not constrain tests of the four mediation models, we again used independent-group *t* tests for comparing mean differences between the similar and dissimilar attitude conditions.

Similarity effect. The bottom part of Table 1 lists the effects of attitude similarity on each of the MVs and on the attraction DV. As expected, all responses were higher when the partner espoused similar rather than dissimilar attitudes.

Meditational pattern. We tested the mediational pattern for positive affect, respect, and inferred attraction, using the same SPSS macro as in Experiment 1. In the first three analyses, we used each single mediator as in Experiment 1. In the second analysis, we used all three mediators simultaneously (cf., Singh, Yeo et al., 2007). The top and bottom parts of Table 3 report results from the single-MV and multiple-MV analyses, respectively.

As in Experiment 1, each MV reliably mediated the SAL. More interestingly, the mediation effect size for inferred attraction was nearly the same in both experiments and was larger than that for positive affect or respect.

The same results were obtained when all three MVs were entered into the parallel multiple-mediators analysis. Each MV again reliably mediated the SAL, and the indirect effect for inferred attraction was the largest of the indirect effects.

We accepted the difference between the two indirect effects as statistically significant only if the bias corrected 95% CI around their difference excluded zero (MacKinnon, 2008; Preacher & Hayes, 2008). The 95% CI of -0.73 to -0.36 around the difference of -0.53 between the indirect effects via positive affect and inferred attraction and those of -0.67 to -0.19 around the difference of -0.43 between the indirect effects via respect and inferred attraction excluded zero. Thus, the indirect effect of attitude similarity via inferred attraction was significantly greater than that via positive affect or respect. In contrast, the 95% CI of -0.23 to 0.02 around the difference of -0.10 between the indirect effects via positive affect and respect included zero. Hence, the two indirect effects did not differ significantly. These mediational patterns confirm the results of Experiment 1 and extend them to a new context in which all the MVs were measured together (cf. Singh, Yeo et al., 2007).

Test of Model 1. The regression-based mediation analyses appeared reasonably consistent with Model 1 from Figure 1 (the parallel multiple-mediator model). However, the regression analyses did not include an index of overall fit of the parallel multiple-mediator model to the data. To examine the model fit, we did structural equation modeling (SEM) of the data in AMOS. We present the unstandardized path coefficients in the top diagram of Figure 2 and the fit indices for Model 1 in the leftmost column of Table 4.

The six path coefficients for Model 1 in the top diagram of Figure 2 are exactly the same as those listed in the bottom of Table 3 for the parallel multiple-mediator test. Despite the lack of a direct effect of attitude similarity in the multiple-mediator model test (in Table 3), the fit indices for Model 1 (in Table 4) were poor. Thus, it seemed quite plausible that alternative sequential models might do a better job of accounting for the data obtained.

Test of Model 2. To test the affect-centered Model 2 (i.e., the combined parallel-sequential multiple-mediator model with affect as the proximal mediator of the DV), we first

performed a SEM of the pooled data from OMMs 4 and 6 (N = 128) in which inferred attraction and respect were each measured before positive affect. We list the six path coefficients in the center path diagram of Figure 2. Contrary to the prescription of Model 2, the path from inferred attraction to positive affect was negligible, t = 0.98, p = .33. The fit indices for Model 2 (listed in the second column from the left in Table 4) further falsified this model.

Though the data from the OMMs in which affect was measured most closely to attraction seemed most unlikely to provide support for Model 2, we also examined the model with the complete set of data (N = 384). The bottom diagram of Figure 2 exhibits the path coefficients and the third column from the left (i.e., Model 2A) in Table 4 lists the fit indices. As can be seen, the path coefficients remained similar but the fit indices only got worse when examining the full set of data.

Tests of Models 3 and 4. The eight path coefficients for Models 3 and 4 are listed in the top and third path diagrams of Figure 3. All eight coefficients for Models 3 and 4 were statistically significant, ps < .01, consistent with our hypothesized sequential multiple-mediator models.

The fit indices for Models 3 and 4 are listed in the fourth column from the left of Table 4. Evidently, the models provided a satisfactory fit to the data. This outcome supports the hypothesized sequential mediation but fails to distinguish Model 3 from Model 4.

Tests of Models 3A and 4A. The eight path coefficients for Models 3A and 4A are listed in the second and bottom path diagrams of Figure 3. Although Models 3A and 4A produce different parameter estimates, the model fit is again identical (see column 5 from left in Table 4). Therefore, Models 3A and 4A are not distinguishable either.

The fit indices for Models 3 and 4 are slightly better than those for alternative Models 3A and 4A. This might suggest some preference for Model 3 or 4 rather than Model 3A or 4A. However, the 90% CI of the RMSEA of .01 (.00, .10) for Models 3 and 4 and of .06 (.00, .13) for Models 3A and 4A overlapped. Thus, Models 3 and 3A of the affect-centered hypothesis and Models 4 and 4A of the affect primacy hypothesis are not clearly distinguishable based on the present data.

Alternative Models 5 and 6. SEM analyses are often most informative if an advocated model can be compared with alternative models and be shown to provide superior fit to the data

(MacCallum, Wegener, Uchino, & Fabrigar, 1993). The fully sequential multiple-mediator models (Models 3, 3A, 4, and 4A) added parameters to the parallel multiple-mediator Model 1 and the combined parallel-sequential multiple-mediator Model 2 and provided superior fit. In order to further demonstrate the potential utility of the particular sequences in Models 3, 3A, 4, and 4A, we examined two more SEMs for alternative sequential multiple-mediator models by placing the MV of positive affect between the other two mediators.

The coefficients for Models 5 and 6 are listed in the respective top and second path diagrams of Figure 4. Although the eight path coefficients for Models 5 and 6 were also statistically significant, the fit indices for those models (reported in the rightmost column of Table 4) were unsatisfactory, similar to Models 1 and 2. We concluded that the data support only the sequential multiple-mediator models consistent with either the affect-centered hypothesis (Models 3 and 3A) or the affect primacy hypothesis (Models 4 and 4A).

Models 3 through 6 of inferred attraction. As there was an overlap between the items used to measure inferred attraction and attraction, we conducted new SEMs for Models 3, 3A, 4, 4A, 5, and 6 with inferred attraction treated as the DV and attraction treated as the MV. We present the four path diagrams for Models 3, 3A, 4, and 4A in Figure 5 and those for Models 5 and 6 in bottom of Figure 4. The fit indices for these six models are listed in the three columns of Table 5.

As can be seen in Figure 5, the path from positive affect to inferred attraction was virtually zero in all four models. Further, the path coefficient from attraction to inferred attraction (0.46) was seemingly lower than the path coefficient from inferred attraction to attraction (0.54) in Figure 3. The fit indices for Models 3, 3A, 4, and 4A reported in Table 5 are generally unsatisfactory. The 90% CI of the RMSEA of these models did not overlap with those of the four models treating attraction as the DV. Thus, we reject the four models treating inferred attraction rather than the reverse.

The fit indices further worsened when we tested Models 5 and 6 and treated inferred attraction as the DV (see the rightmost column of Table 5). The path coefficients from the corresponding SEMs are displayed in the third and bottom diagrams of Figure 4. Again, the path from positive affect to inferred attraction was nearly zero in both models. Collectively, these results indicate that the stronger relationship between attraction and inferred attraction is at odds

with an artifact of item-overlap interpretation, and that inferred attraction should more correctly be regarded as a cause than as an effect of attraction in Experiment 2.

Discussion

There are four key findings of Experiment 2. First, positive affect, respect, inferred attraction, and attraction are correlated but distinct constructs. Second, inferred attraction is stronger than positive affect or respect as a mediator of the SAL. Third, inferred attraction appears to have acted as a mediator of the SAL, not as an effect of the similarity-activated attraction or as an artifact of item-overlap between the attraction and inferred attraction measures. Finally, and the most important, the fully sequential multiple-mediator Models 3, 3A, 4, and 4A fit to the data equally well, but the remaining four models provide poor and inadequate fit to the data.

GENERAL DISCUSSION

Our findings contribute to the current knowledge about the SAL in two important ways. First, the constructs of positive affect, respect, inferred attraction, and attraction, albeit correlated, are distinct, conceptually separable processes in interpersonal attraction. Such distinctions between responses hold when only one of the three mediators and the DV are measured (e.g., Condon & Crano, 1988; Montoya & Horton, 2004; Singh, Lin et al., 2008; the current Experiment 1) as well as when all of them and the DV are measured together (e.g., Singh, Yeo et al., 2007; the current Experiment 2). Whereas positive affect, respect, and inferred attraction each mediate the SAL, inferred attraction serves as a stronger mediator than either positive affect or respect. Evidently, then, the existing formulations were correct in proposing affect (Byrne & Clore, 1970; Clore & Gormaly, 1974; Singh, 1974), inferred attraction (Aronson & Worchel, 1966; Condon & Crano, 1988), or respect (Montoya & Horton, 2004) as a mediator of the SAL but were incorrect in treating their presumed latent variable as the *sole* mediator. We first contribute to the extant literature by clearly supporting the multiple-mediator model over the single-mediator ones.

Second, and theoretically more important, the three mediators of the SAL seem to be *sequentially linked* to each other. Such sequential mediation appears to take the form posited by either the affect-centered hypothesis (Model 3: inferred attraction \rightarrow respect \rightarrow positive affect; Model 3A: respect \rightarrow inferred attraction \rightarrow positive affect) or the affect primacy hypothesis

(Model 4: positive affect \rightarrow respect \rightarrow inferred attraction; Model 4A: positive affect \rightarrow inferred attraction \rightarrow respect). The fit indices for these four sequential multiple-mediator models to the data were not only satisfactory but also much better than those for the competing four Models 1, 2, 5, and 6 (Baron et al., 2006; Singh, Yeo et al., 2007; see MacCallum et al., 1993).

One possible objection to our evidence for the sequential multiple-mediator Models 3, 3A, 4, and 4A and against the parallel multiple-mediator Model 1 and the combined parallelsequential multiple-mediator Model 2 can be raised on the grounds that the models differed in the number of paths from the IV to the DV through the MVs. Models 3, 3A, 4, and 4A had eight such paths with a df of 2; Models 1 and 2, in contrast, had six paths with a df of 4. Had the misfit of Models 1 and 2 been solely due to inclusion of fewer structural paths, the fit of the alternative sequential multiple-mediator Models 5 and 6 should have been equal to Models 3, 3A, 4 and 4A. However, Models 5 and 6 failed to adequately represent the SAL, despite having the same number of parameters as Models 3, 3A, 4, and 4A. In this context, it is worth noting that Models 3, 3A, 4, and 4A were also superior on fit indices that control for the number of parameters in the model (such as the RMSEA), and this is true both in comparison with models with the same number of parameters (i.e., Models 5 and 6) and for models with fewer parameters (i.e., Models 1 and 2). Thus, we present convincing evidence against the prevalent practice of regarding the correlated MVs as operating independently of each other (Singh, Ng et al., 2008; Singh, Yeo et al., 2007) and for the dependency of the succeeding MV on the preceding ones in fostering attraction from similar attitudes.

Admittedly, the present data do not allow a clear choice among the competing Models 3 and 3A or Models 4 and 4A of the SAL. Nevertheless, the identification of these models as more plausible than parallel models or alternative orderings of the MVs provides a reasonable step forward. Future research might now focus on distinguishing among the remaining plausible models. We suggest that there is potential merit in Models 3 and 3A because they conform to the typical information-processing model of affect (cf., Zajonc, 1980, Figure 1, p. 153). Further, they represent a relatively minor modification of the affect-centered model of attraction (Baron et al., 2006). Regardless, it appears from the current research that the cognitive variables of inferred attraction and respect should be recognized as sequential, instead of parallel, processes.

Our research confirms Singh, Yeo et al.'s (2007) finding of the dominance of inferred attraction among the mediators of the SAL and suggestion of a sequential mediation by the three

MVs. However, we did not obtain the negative effect of positive affect on attraction that was reported in that research and had led us to undertake the current research. This inconsistency might be due to the different measures of affect used in the two studies.

In Singh, Yeo et al. (2007), positive affect was measured by responses to a set of six bipolar adjectives (*sad–happy, low–high, negative–positive, bad–good, unpleasant–pleasant, and uncomfortable–comfortable*) (Byrne & Clore, 1970; Singh, 1974). However, in the current work, we measured positive affect by responses to the four items coming from the *interest* and *activation* dimensions of the widely used PANAS (Egloff et al., 2003; Thompson, 2007). With respect to the face validity, the first set of six items might seem to form a better measure of immediate affect than do the four items used. Yet, in the single-mediator tests using the two measures, the α s of the first (.91 in Singh, Yeo et al., 2007) and that of the second (.89 in the current Experiment 1) measures were hardly different. In addition, the size of the mediation effect of affect was actually smaller in the Singh, Yeo et al.'s (2007) study (.27) compared to the present Experiment 1 (.39). Thus, it is not clear that the current measure represents the positive affect construct substantially worse than the previous measure.

One difference that might prove consequential is the inclusion of negative affect in the bipolar scales used by Singh, Yeo et al. (2007). It could be that participants who experienced more negative affect than seemed reasonable given the level of inferred attraction and respect detected those reactions and corrected for perceived impact of that negative affect on the attraction that was expressed (cf. Berkowitz & Troccoli, 1990; Isbell & Wyer, 1999; see Wegener & Petty, 1997). Because the current affect measure did not include any report of negative affect per se, it might have been less likely for people to consider the reports of affect to be incompatible with the other mediators or the IV of attitude similarity. It should be emphasized, nevertheless, that future research using both of the previous and present measures of positive affect would be helpful as a check on whether the two measures truly tapped the same construct.

After a review and meta-analysis of the literature on the effects of various determinants of the SAL, Montoya and Horton (2013) claimed that what was originally believed to an outcome of affective mediators can better be accounted for by cognitive mediators. This position is further reiterated in the subsequently proposed two-dimensional model of attraction (Montoya & Horton, 2014). Given our evidence for the mediation of the SAL by positive affect in all the multiple-mediator models tested, affect not only seems necessary but also appears important in

interpersonal attraction. The import of affect is highlighted by the sequential multiple-mediator Models 3,3A, 4, and 4A in which positive affect was either the last or the first variable in the $IV \rightarrow MVs \rightarrow DV$ chain. To us, therefore, behavioral attraction might be explained better by specifying *how* affective and cognitive mediators influence each other, as illustrated in this research, rather than pitting one mediator against the other (cf., Singh, Ng et al., 2008; Singh, Yeo et al., 2007). Future investigators might benefit considerably by studying the close interdependence of affect and cognition in any behavior of interest. As Zajonc (2000) advised, "... we need ... to collect affective reactions as we collect cognitive judgments, even though we are primarily interested in cognitive outcomes, and to collect cognitive judgments even if we are primarily interested in affective ones" (pp. 55-56).

Given the general significance of similarity/dissimilarity in relationship formation (Clark & Lemay, 2010) and organizational status (Pfeffer, 2013), it seems especially important to specify and understand processes through which similarity exerts its potent influence. Our studies of the SAL highlight the importance of both affective and cognitive processes in homophily (Lazarsfeld & Merton, 1954) expressed in an old adage *birds of a feather flock together*. Most people strive to create and preserve a positive self-image in interpersonal contexts (Williams & Gilovich, 2008). Such self-enhancement motivation activates search for similarity in demographics, personality, attitudes, and values. Our evidence for a strong SAL and its mediation by two self-serving mechanisms of positive affect (Byrne & Clore, 1970; Singh, 1974) and inferred acceptance or approval of the participant by the partner (Ettinger, Nowicki & Nelson, 1970) points toward a pervasive pursuit of the self-enhancement motive.

Identifying the sequential nature of the processes that contribute to similarity effects would allow one to better anticipate the influences of personal or situational factors present when meeting the target person. For example, consider a situation in which the target person expresses liking of a research participant in a setting where the target is also associated with negative affect (e.g., hot or crowded environment in which the person is met, Bell & Baron, 1974; Griffitt, 1970). In such a setting, it might matter a great deal whether inferred attraction or affect served as a more proximal influence on attraction. The specific sequence of direct and indirect effects might also hold important implications for whether, in the face of an intervention at one phase of the process (such as inferred attraction), the original similarity in attitudes does or does not continue to exert an influence on liking of the other person. Thus, in addition to setting the stage

for future research distinguishing among currently plausible sequences, the current studies might also help to generate hypotheses of more applied interest.

Consider, for instance, two organizational phenomena: (a) people often "judge favorably those who are most similar to them" in organizations (Pfeffer, 2013, p. 275); and (b) people who have successful careers appear to be similar to rather than dissimilar from their peers and supervisors (e.g., Schaubroeck & Lam, 2002; Turban & Jones, 1988). How could similarity prevail so clearly when most organizations nowadays intend to be meritocratic? Our successful sequential models provide explanations of the similarity effects in organizations. According to Models 3 and 3A, similarity would continue to influence allocation of rewards, resources, and/or power even if an organizational intervention were to change the level of inferred attraction. Because similarity influences the succeeding MVs of respect and positive affect that are proximal to attraction, the similarity effect can survive even after the intervention. On the other hand, Models 4 and 4A suggest that similarity would continue to be a potent factor even if an organizational intervention (e.g., music, air conditioning, family get-together, etc.) were to change the level of positive affect. In this case, the similarity may draw people together via the succeeding and stronger MV of inferred attraction than positive affect. In sum, then, intervention vis-à-vis any single or multiple distal MV(s) of the similarity effect might not be as successful as it is expected to be because the remaining succeeding and proximal MVs remain operative as well.

There is need for a better clarity vis-à-vis the self-enhancing constructs of affect and inferred attraction in attraction research. Byrne and Clore (1967) had originally suggested that people are motivated to be effective in their social worlds, and that such effectiveness comes from being able to adequately understand and master the environment. Awareness of similarity in attitudes signals effective functioning; that of dissimilar attitudes, in contrast, raises doubts and confusion. It is the satisfaction of the effectance motive by similar attitudes that draws people together. Without examining the relations between validation and positive affect evoked by similar attitudes, however, Byrne and Clore (1970) left the relationship between effectance motivation and affect unexplored. To us, however, including the measures of validation and those of the joy, interest, and activation dimensions of positive affect along with the two known cognitive MVs of SAL may be useful in choosing between the two versions of the affect-centered and affect primacy multiple-mediator models.

The same can be said about inferred attraction. If it truly signals the willingness of the partner to cooperate with the participant (Montoya & Horton, 2014) and hence contributes to self-enhancement, then a measure of trust in the partner should always be included among the three known MVs of SAL. We contend so because trust has been found to be a mediator of the effect of the partner's attraction toward the participants (cf. Montoya & Horton, 2012; Montoya & Insko, 2008) and general warmth (Singh, Simons, Young, Sim, Chai, Singh, & Chiou, 2009) on interpersonal attraction. Distinguishing the causal sequences specified in Model 3 from Model 4 or in Model 3A from Model 4A by including the measures of validation, trust, and positive affect poses another important challenge to future investigators of relationships in general and the SAL in particular. Manipulations of the various mediators in the sequence (with measurement of the mediators that come later in the sequence) could also help in distinguishing among these models (Bullock, Green, & Ha, 2010; MacCallum et al., 1993).

Two methodological implications of our findings also deserve mention. First, even though inferred attraction mediated the SAL and left no direct effect of attitude similarity on attraction in our single-MV tests of Experiment 1 and 2 (i.e., full mediation, Baron & Kenny, 1986), affect and respect significantly added to the mediation in parallel multiple-mediator and sequential multiple-mediator models. This evidence indicates that "complete" mediation of the SAL by any single measured variable (e.g., Montoya & Horton, 2004) should not necessarily become the basis for accepting that variable as the *sole* mediator (cf., Rucker et al., 2011).

Second, evidence for complete mediation in any mediation test does not guarantee a satisfactory fit of the mediation model to the data. As we showed, even when the three mediators had reliable indirect effects and the direct effect of attitude similarity was no longer significant, the fit of the parallel multiple-mediator Model 1 to the data was poor. Clearly, investigators have to keep the distinction between the individual mediation tests and the model fit test always in their minds. Whereas the regression-based mediation analyses (Preacher & Hayes, 2008) test the mediation(s) by the measured variables, SEMs simultaneously test the individual parameters and the fit of the entire model to the data. Given the support for Models 3, 3A, 4, and 4A and the rejection of four alternative models in SEMs (each of which would provide regression-based support for various indirect effects through the proposed sequence of mediators), we recommend that future investigators undertake attraction studies that are suitable for SEM analyses.

In conclusion, positive affect, respect, and inferred attraction not only mediate the SAL but also mediate the similarity effect on one another. At this stage of the attitudes-and-attraction research, the four sequential routes of inferred attraction \rightarrow respect \rightarrow positive affect, respect \rightarrow inferred attraction \rightarrow positive affect, positive affect \rightarrow respect \rightarrow inferred attraction, and positive affect \rightarrow inferred attraction \rightarrow respect remain equally justifiable. In contrast, the sequences that place positive affect between the two cognitive variables of respect and inferred attraction (Models 5 and 6) or view the three mediators as parallel processes (Singh, Yeo et al., 2007) are less plausible.

REFERENCES

- Aronson, E. & Worchel, P. (1966). Similarity versus liking as determinants of interpersonal attractiveness. *Psychonomic Science*, 5, 157-158.
- Baron, R. A., Byrne, D., & Branscombe, N. R. (2006). *Social Psychology* (11th Ed.). Boston: Allyn & Bacon.
- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51, 1173-1182.
- Bell, P. A., & Baron, R. A. (1974). Environmental influences on attraction: Effects of heat, attitude similarity, and personal evaluations. *Bulletin of the Psychonomic Society*, 4, 479–481.
- Berkowitz, L., & Troccoli, B. T. (1990). Feelings, direction of attention, and expressed evaluations of others. *Cognition and Emotion*, *4*, 305-325.
- Bullock, J. G., Green, D, P. & Ha, S E. (2010). Yes, but what's the mechanism? (Don't expect an easy answer). *Journal of Personality and Social Psychology*, *98*, 550-558.
- Byrne, D. (1961). Interpersonal attraction and attitude similarity. *Journal of Abnormal and Social Psychology*, 62, 713-715.
- Byrne, D. (1971). The attraction paradigm. New York: Academic Press.
- Byrne, D. (1997). An overview (and underview) of research and theory within the attraction paradigm. *Journal of Social and Personal Relationships, 14*, 417-431.
- Byrne, D., & Clore, G. L. (1967). Effectance arousal and attraction. *Journal of Personality and Social Psychology Monograph, 6,* 1-18
- Byrne, D., & Clore, G. L. (1970). A reinforcement model of evaluative responses. *Personality: An International Journal*, *1*, 103-128.
- Byrne, D., & Griffitt, W. (1966a). A developmental investigation of the law of attraction. *Journal of Personality and Social Psychology*, *4*, 699-702.

- Byrne, D., & Griffitt, W. (1966b). Similarity versus liking: A clarification. *Psychonomic Science*, *6*, 295-296.
- Byrne, D., & Rhamey, R. (1965). Magnitude of positive and negative reinforcements as a determinant of attraction. *Journal of Personality and Social Psychology*, *2*, 884-889.
- Clark, M. S., & Lemay, E. P. (2010). Close relationships. In S. T. Fiske, D. T. Gilbert, & G. Lindzey (Eds.), Handbook of social psychology (5th ed., Vol. 2, pp. 888-940). New York: Wiley.
- Clore, G. L., & Baldridge, B. (1970). The behavior of item weights in attitude-attraction research. *Journal of Experimental Social Psychology*, *6*, 177-186.
- Clore, G. L., & Gormly, J. B. (1974). Knowing, feeling, and liking: A psychophysiological study of attraction. *Journal of Research in Personality*, *8*, 218–230.
- Condon, J. W., & Crano, W. D. (1988). Inferred evaluation and the relation between attitude similarity and interpersonal attraction. *Journal of Personality and Social Psychology*, 54, 789-797.
- Egloff B., Schmukle, S. C., Burns, L. R., Kohlmann, C. W., & Hock, M. (2003). Facets of dynamic positive affect: Differentiating joy, interest, and activation in the positive and negative affect schedule (PANAS). *Journal of Personality and Social Psychology*, 85, 528-540.
- Ettinger, R. F., Nowicki, S., & Nelson, D. A. (1970). Interpersonal attraction and the approval motive. *Journal of Experimental Research in Personality*, *4*, 95-99.
- Gouaux, C. (1971). Induced affective states and interpersonal attraction. *Journal of Personality and Social Psychology*, 20, 37–43.
- Griffitt, W. (1970). Environmental effects on interpersonal affective behavior: Ambient affect, temperature, and attraction. *Journal of Personality and Social Psychology*, 15, 240–244.
- Herbst, K. C., Gaertner, L., & Insko, C. A. (2003). My head says yes but my heart says no: Cognitive and affective attraction as a function of similarity to ideal self. *Journal of Personality and Social Psychology*, 84, 1206-1219.
- Insko, C. A., Thompson, V. D., Stroebe, W., Shaud, K. F., Pinner, B. E., & Layton, B. D. (1973). Implied evaluation and the similarity-attraction effect. *Journal of Personality and Social Psychology*, 25, 297-308.
- Isbell, L. M., & Wyer, R. S. (1999). Correcting for mood-induced bias in the evaluation of political candidates: The roles of intrinsic and extrinsic motivation. *Personality and Social Psychology Bulletin*, 25, 237-249.

- Lazarsfeld, P. F., & Merton, R. K. (1954). Friendship as a social process: A substantive and methodological analysis. In M. Berger, T. Abel, & C. H. Page (Eds.), *Freedom and control in modern society* (pp. 18–66). New York: Van Nostrand.
- MacCallum, R. C., Wegener, D. T., Uchino, B. N., & Fabrigar, L. R. (1993). The problem of equivalent models in applications of covariance structure analysis. *Psychological Bulletin*, 114, 185-199.
- MacKinnon, D. P. (2008). *Introduction to statistical mediation analysis*. New York: Erlbaum.
- McWhirter, R. M., & Jecker, J. D. (1967). Attitude similarity and inferred attraction, *Psychonomic Science*, *7*, 225-226.
- Michinov, E., & Monteil, J. M. (2002). The similarity-attraction relationship revisited:
 Divergence between the affective and behavioral facets of attraction. *European Journal of Social Psychology*, *32*, 485–500.
- Montoya, R. M., & Horton, R. S. (2004). On the importance of cognitive evaluation as a determinant of interpersonal attraction. *Journal of Personality and Social Psychology*, 86, 696-712.
- Montoya, R. M., & Horton, R. S. (2012). The reciprocity of liking effect. In M. Paludi (Ed.), *The psychology of love* (pp. 39-57). Santa Barbara, CA: Praeger.
- Montoya, R. M., & Horton, R. S. (2013). A meta-analytic investigation of the processes underlying the similarity-attraction effect. *Journal of Social and Personal Relationships*, 30, 64-94.
- Montoya, R. M., & Horton, R. S. (2014). A two-dimensional model for the study of interpersonal attraction. *Personality and Social Psychology Review*. 18, 59-86
- Montoya, R. M., Horton, R. S., & Kirchner, J. (2008). Is actual similarity necessary for attraction?: A meta-analysis of actual and perceived similarity. *Journal of Social and Personal Relationships*, 25, 889-922.
- Montoya, R.M., & Insko, C.A. (2008). Toward a more complete understanding of the reciprocity of liking effect. *European Journal of Social Psychology*, *38*, 477-498.
- Pfeffer, J. (2013). You're still the same: Why theories of power hold over time and across contexts. *The Academy of Management Perspectives*, 27, 269-280.
- Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods*, 40, 879-891.

- Rucker, D. D., Preacher, K. J., Tormala, Z. L., & Petty, R. E. (2011). Mediation analysis in social psychology: Current practices and new recommendations. *Social and Personality Psychology Compass*, 5, 359–371.
- Schaubroeck, J., & Lam, S. S. K. (2002). How similarity to peers and supervisors influence organizational advancement in different cultures. *Academy of Management Journal*, 46, 1120-1136.
- Singh, R. (1974). Reinforcement and attraction: Specifying the effects of affective states. *Journal of Research in Personality*, 8, 294-305.
- Singh, R., Ho, L. J., Tan, H. L., & Bell, P. A. (2007). Attitudes, personal evaluations, and interpersonal attraction: On the direct, indirect, and reverse-causal effects. *British Journal* of Social Psychology, 46, 19-42.
- Singh, R., & Ho, S. Y. (2000). Attitudes and attraction: A new test of the attraction, repulsion, and similarity-dissimilarity asymmetry. *British Journal of Social Psychology*, 39, 197-211.
- Singh, R., Lin, P. K.F., Tan, H. L., & Ho, L. J. (2008). Evaluations, attitude similarity, and interpersonal attraction: Testing the hypothesis of weighting interference across responses. *Basic and Applied Social Psychology*, 30, 241-252
- Singh, R., Ng, R., Ong, E, L., & Lin, P. K. F. (2008). Different mediators of the age, gender, and attitude similarity effects in interpersonal attraction. *Basic and Applied Social Psychology*, 30, 1-17.
- Singh, R., Simons, J. J. P., Young, D. P. C. Y., Sim, B. S. X., Chai, X. T., Singh, S., & Chiou, S. Y. (2009). Trust and respect as mediators of the other- and self-profitable trait effects on interpersonal attraction. *European Journal of Social Psychology*, 39, 1021-1038.
- Singh, R. & Teoh, J. B. P. (2000). Impression formation from intellectual and social traits: Evidence for behavioural adaptation and cognitive processing. *British Journal of Social Psychology*, 39,537-554.
- Singh, R., Yeo, S. E., Lin, P. K. F, & Tan, L. (2007). Multiple mediators of the attitude similarity-attraction relationship: Dominance of inferred attraction and subtlety of affect. *Basic and Applied Social Psychology*, 29, 49-62.

- Tan, D. T. Y., & Singh, R. (1995). Attitudes and attraction: A developmental study of the similarity-attraction and dissimilarity-repulsion hypotheses. *Personality and Social Psychology Bulletin*, 21, 975-986.
- Thompson, E. R. (2007). Development and validation of an internationally reliable short form of the positive and negative affect schedule (PANAS). *Journal of Cross Cultural Psychology*, 38, 227-242.
- Turban, D.B., & Jones, A.P. (1988). Supervisor-subordinate similarity: Types, effects, and mechanisms. Journal of Applied Psychology, 73, 228-234.
- Watson D., Clark, L.A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology*, 54, 1063-1070.
- Wegener, D. T., & Petty, R. E. (1997). The flexible correction model: The role of naïve theories of bias in bias correction. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 29, pp. 141-208). New York: Academic Press.
- Williams, E. F., & Gilovich, T. (2008). Do people really believe they are above average? *Journal of Experimental Social Psychology*, *44*, 1121-1128.
- Zajonc, R. B. (1980). Feeling and thinking: Preferences need no inferences. *American Psychologist*, *35*, 151-175.
- Zajonc, R. B. (2000). Feeling and thinking: Closing the debate over the independence of affect.In J. P. Forgas (Ed.), *Feeling and thinking: The role of affect in social cognition* (pp. 31-58). New York: Academic Press.

Footnotes

- 1. We term Montoya and Horton's (2004) cognitive evaluation as respect for the partner's competence because the items asked for evaluation of the partner's achievement, leadership, potential, and success.
- 2. Another variable, *inferred respect* (i.e., how would the partner rate the participant's intelligence and general knowledge?), preceded inferred attraction. Thus, the orders of mediator-measurement were positive affect-inferred respect-inferred attraction-respect and inferred respect-inferred attraction-positive affect-respect. All four variables were included in the multiple-mediation analyses.
- 3. In the parallel multiple-mediator analyses of the present data from OMMs 2 and 5, we found mediation of the SAL by inferred attraction alone. For the path to attraction, respect had a nonsignificant negative coefficient at OMM 2 but a nonsignificant positive

coefficient at OMM 5. Positive affect was influenced by attitude similarity at OMM 2 but not at OMM 5. For the path to attraction, positive affect had a nonsignificant positive coefficient at OMM 2 but a significant positive coefficient at OMM 5. Collectively, these results suggest that the OMMs of Singh, Yeo et al. (2007) were truly problematic for the weaker mediators positive affect and respect.

Table 1

| Mean and Standard Deviation of Responses to Dissimilar and Similar Partners and |
|---|
| Results from Tests of Significance and Effect Size in Experiments 1 and 2 |

| | | | | Significance and Effect | | | |
|-----------------------------|----------------------------|-------------------|------------------|-------------------------|-----|--|--|
| | Partner's Attitudes | | | Size | | | |
| Responses and Reliabilities | Dissimilar | Similar | t | р | r | | |
| Exper | iment 1: Positive Affect | Condition (N = | = 60) | | | | |
| Positive Affect | 1.95 | 2.98 | 5.95 | .001 | .62 | | |
| $(\alpha = .89)$ | (0.64)) | (0.65) | | | | | |
| Attraction | 3.18 | 4.45 | 6.20 | .001 | .60 | | |
| $(\alpha = .82)$ | (1.01) | (0.57)) | | | | | |
| Ex | periment 1: Respect Cor | ndition ($N = 6$ | 0) | | | | |
| Respect | 3.83 | 4.99 | 4.16 | .001 | .47 | | |
| $(\alpha = .82)$ | (0.95) | (0.56) | | | | | |
| Attraction | 3.66 | 4.73 | 5.31 | .001 | .57 | | |
| $(\alpha = .85)$ | (0.94) | (0.57) | | | | | |
| Experin | nent 1: Inferred Attractio | n Condition (1 | $\mathrm{V}=60)$ | | | | |
| Inferred Attraction | 3.23 | 4.70 | 7.13 | .001 | .69 | | |
| $(\alpha = .91)$ | (0.92) | (0.66) | | | | | |
| Attraction | 3.59 | 4.52 | 3.86 | .001 | .44 | | |
| $(\alpha = .84)$ | (0.95) | (0.91) | | | | | |
| | Experiment 2 (N | = 384) | | | | | |
| Positive Affect | 2.20 | 2.73 | 7.08 | .001 | .34 | | |
| $(\alpha = .81)$ | (0.73) | (0.74) | | | | | |
| Respect (.85) | 3.83 | 4.69 | 12.89 | .001 | .55 | | |
| $(\alpha = .85)$ | (0.79) | (0.67) | | | | | |
| Inferred Attraction | 3.46 | 4.60 | 11.57 | .001 | .51 | | |
| $(\alpha = .85)$ | (0.96) | (0.74) | | | | | |
| Attraction | 3.61 | 4.49 | 9.73 | .001 | .44 | | |
| $(\alpha = .86)$ | (1.09) | (0.64) | | | | | |

Note. The value in the parenthesis below the response is Cronbach's alpha (α) and that below the mean is the corresponding *SD*. The *df*s for the *t*s of Experiments 1 and 2 were 58 and 382, respectively.

Table 2

Unstandardized Beta Coefficients and Indirect Effects of Attitude Similarity via a Single Mediator on Attraction in Experiment 1 (Ns = 60)

| (a): | (b): | (c): | (c'): | Mediator | (a)x(b) | | Effect Size |
|--------|--------|--------|--------|----------|----------|------------|------------------|
| | | | Direct | | Indirect | | |
| IV→MV | MV→DV | IV→DV | Effect | MV | Effect | 95% CI | (a)x(b)/c |
| 1.03** | 0.50** | 1.27** | 0.75** | PA | 0.52 | 0.25, 0.90 | 0.39 |
| 1.17** | 0.37** | 1.07** | 0.63** | Respect | 0.43 | 0.13, 0.87 | 0.40 |
| 1.47** | 0.74** | 0.93** | -0.16 | IA | 1.09 | 0.71, 1.61 | .87 [#] |

Note. The indirect effects in bold are greater than zero. PA: Positive affect; IA: Inferred attraction. CI: Confidence Intervals. $*p \le .05$; $**p \le .01$.

#: Indirect effect/(Indirect effect + |Direct effect|) (MacKinnon, 2008, p. 83).

Table 3

Unstandardized beta coefficients and indirect effects of attitude similarity via positive affect, respect, and inferred attraction on attraction in Experiment 2 (N = 384)

| (a): | (b): | (c): | (c'): | Mediators | (a)x(b): | | Effect size |
|--------|--------|--------|----------|---------------|--------------------------|------------|-------------|
| IV→MV | MV→DV | IV→DV | Direct | MVs | Indirect | 95% CI | (a)x(b)/(c) |
| | | | effect | | effect | | |
| | | | Single- | mediator test | 5 | | |
| 0.53** | 0.27** | 0.89** | 0.74** | PA | 0.15 | 0.08, 0.23 | 0.17 |
| 0.86** | 0.60** | 0.89** | 0.37** | Respect | 0.52 | 0.39, 0.67 | 0.58 |
| 1.13** | 0.65** | 0.89** | 0.15 | IA | 0.74 | 0.58, 0.92 | 0.83 |
| | | | Multiple | e-mediator te | st | | |
| 0.53** | 0.14** | 0.89** | 0.04 | PA | 0.08 ^b | 0.02, 0.13 | 0.09 |
| 0.86** | 0.21** | | | Respect | 0.18 ^b | 0.07, 0.29 | 0.20 |
| 1.13** | 0.54** | | | IA | 0.61 ^a | 0.44, 0.78 | 0.69 |

Note. The indirect effects in bold are significantly greater than zero; those with different superscripts differ significantly from each other. PA: Positive affect; IA: Inferred attraction. * $p \le .05$; ** $p \le .01$.

| Fit Indices | Multiple-Mediator Models of Attraction | | | | | | | |
|-------------|--|--------|--------|------|-------|--------|--|--|
| | 1 | 2 | 2A | 3-4 | 3A-4A | 5-6 | | |
| χ^2 | 184.47 | 160.29 | 481.86 | 2.09 | 4.89 | 160.64 | | |
| df | 4 | 4 | 4 | 2 | 2 | 2 | | |
| р | .001 | 001 | .001 | .35 | .09 | .001 | | |
| NNFI/TLI | 0.42 | -0.42 | -0.34 | 1 | 0.98 | -0.03 | | |
| IFI | 0.77 | 0.77 | 0.47 | 1 | 1 | 0.8 | | |
| RMSEA | .34 | .34 | .52 | .01 | .06 | .46 | | |
| SRMR | .14 | .14 | .25 | .01 | .02 | .12 | | |

Table 4

Fit Indices for the Eight Multiple-Mediator Models Predicting Attraction in Experiment 2

Note. NNFI/TLI: Non-normed fit index/Tucker-Lewis index; IFI: Incremental fit index; RMSEA: Root mean square error of approximation; SRMR: Standardized root mean residual. Respect (R), inferred attraction (IA), and positive affect (PA) were between the two MVs of the sequential mediation Models 3-4, 3A-4A, and 5-6, respectively. The *N*s for Model 2 and the other models were 128 and 384, respectively.

Table 5

Fit Indices for the Six Sequential Multiple-Mediator Models Predicting

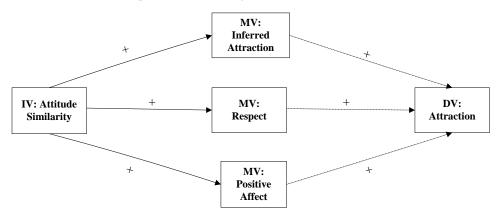
| | Sequential Models of Inferred Attraction | | | | |
|-------------|--|-------|--------|--|--|
| Fit Indices | 3-4 | 3A-4A | 5-6 | | |
| χ^2 | 33.26 | 26.88 | 119.44 | | |
| df | 2 | 2 | 2 | | |
| р | .001 | .001 | .001 | | |
| NNFI/TLI | 0.80 | 0.84 | 0.24 | | |
| IFI | 0.96 | 0.97 | 0.85 | | |
| RMSEA | .20 | .18 | .39 | | |
| SRMR | .04 | .02 | .10 | | |

Inferred Attraction Tested in Experiment 2

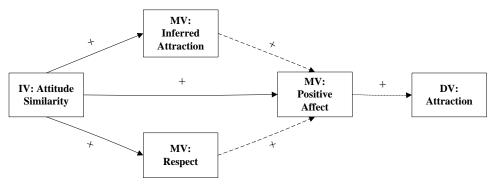
Note. NNFI/TLI: Non-normed fit index/Tucker-Lewis index; IFI: Incremental fit index; RMSEA: Root mean square error of approximation; SRMR: Standardized root mean residual. Respect (R), attraction (A), and positive affect (PA) were between the two other MVs of the sequential multiple-mediators Models 3-4, 3A-4A, and 5-6, respectively.



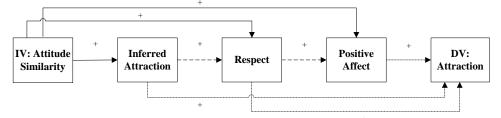
Model 1: Parallel Multiple-Mediators (Singh, Yeo et al., 2007)

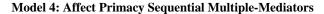


Model 2: Parallel-Sequential Multiple-Mediators (Baron et al., 2006)



Model 3: Affect-Centered Sequential Multiple-Mediators





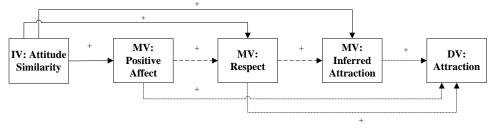
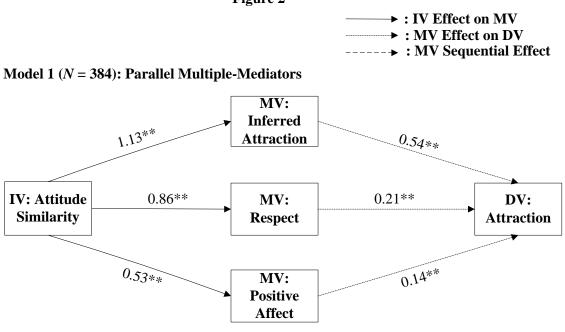
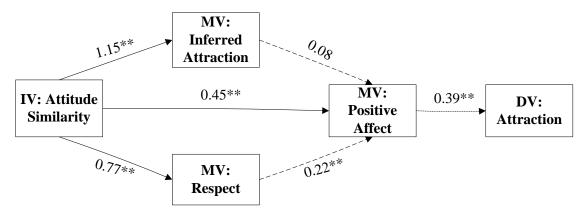


Figure 1. The proposed parallel multiple-mediators Model 1 (top diagram), affect-centered combined parallel-sequential multiple-mediators Model 2 (second diagram), affect-centered fully sequential multiple-mediators Model 3 (third diagram), and affect primacy fully sequential multiple-mediators Model 4 (bottom diagram) of the SAL via the MVs of positive affect, respect, and inferred attraction in Experiment 2. +: A significantly path coefficient.





Model 2 (N = 128): Parallel-Sequential Multiple-Mediators



Model 2A (N = 384): Parallel-Sequential Multiple-Mediators

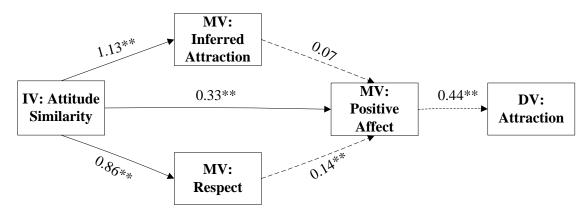
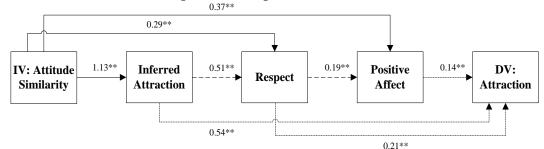


Figure 2. The unstandardized path coefficients from tests of Model 1(top diagram) and Model 2 (N = 128) and 2A (N = 384) (center and bottom diagrams)) of the SAL via the three MVs in Experiment 2. ** $p \le .01$

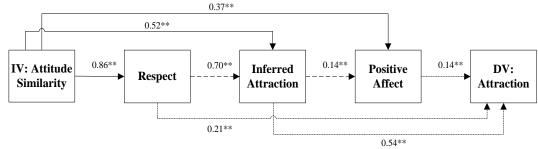


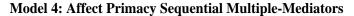
→ : IV Effect on MV
→ : MV Effect on DV
-----→ : MV Sequential Effect

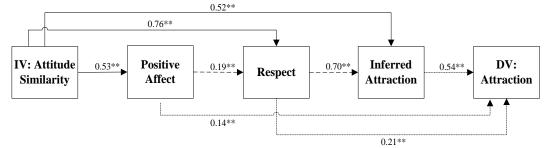
Model 3: Affect-Centered Sequential Multiple-Mediators













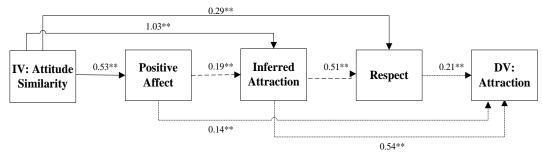


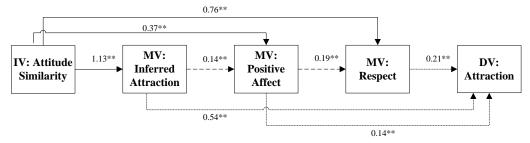
Figure 3. The unstandardized path coefficients from tests of Models 3, 3A, 4, and 4A of the SAL via the three MVs in Experiment 2. Because Models 3 and 3A place positive affect proximal to the DV of attraction, they are different versions of the same affect-centered model. Given the placement of positive affect proximal to the IV of attitude similarity in Models 4 and 4A, these models are different versions of the same affect primacy model. ** $p \le .01$.

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Figure 4
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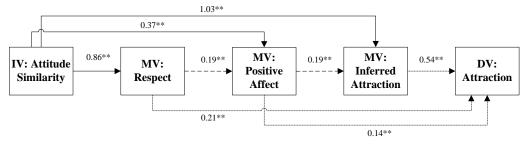
→ : IV Effect on MV → : MV Effect on DV -----→ : MV Sequential Effect

Alternative Sequential Multiple-Mediators Models of Attraction









Alternative Sequential Multiple-Mediators Models of Inferred Attraction

Model 5: Respect-Centered Sequential Multiple-Mediators

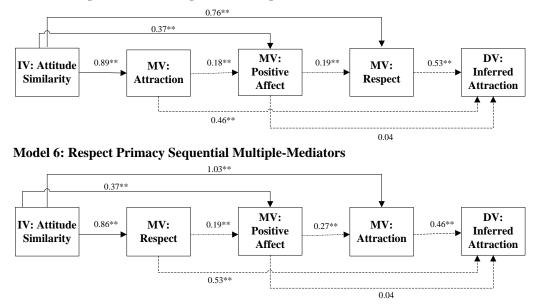
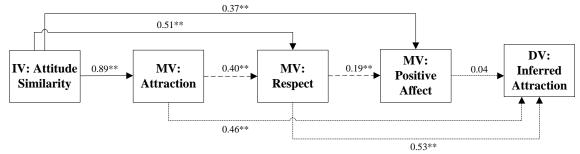


Figure 4. The unstandardized path coefficients from tests of two alternative sequential Models 5 and 6 (top and second diagrams of the upper part) of the SAL via the three MVs in Experiment 2. The third and bottom diagrams display the unstandardized path coefficients from tests of two alternative sequential Models 5 and 6 of inferred attraction. Notably, all these four models place positive affect between the two cognitive MVs.

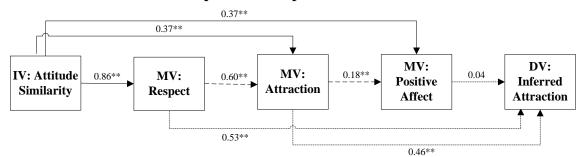


IV Effect on MV
 MV Effect on DV
 MV Sequential Effect

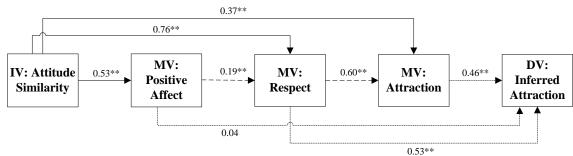
Model 3: Affect-Centered Sequential Multiple-Mediators







Model 4: Affect Primacy Sequential Multiple-Mediators





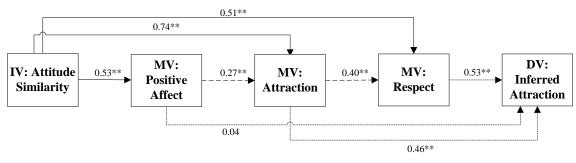


Figure 5. The unstandardized path coefficients from two tests of the hypothesized affectcentered sequential Models 3 and 3A (top and second diagrams) and the affect primacy sequential Models 4 and 3A (third and bottom diagrams) of inferred attraction via the MVs of positive affect, respect, and attraction in Experiment $2.**p \le .01$.