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Solidifying the Causal Role of Trust in Interpersonal Attraction

from Attitude Similarity

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Abstract

Attitude similarity—a cause of attraction--and the partner's trustworthiness--a mediator--were manipulated at two successive occasions, and trust and attraction were measured. Because the partner's trustworthiness was known at Time 2 only, attitude similarity influenced the initial trust and attraction responses and the final trust, but not the final attraction. This experimental evidence for mediation by trust was further confirmed by a modeling of the final attraction on the two manipulations and the three previously measured responses. Specifically, the initial trust and attraction responses originating from attitude similarity bolstered the corresponding responses to the partner's trustworthiness but the initial attraction did not influence the latter trust (i.e., no reverse-causation). Results solidified the previous evidence for mediation of similarity effects on attraction by trust.

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Introduction

It has recently been shown that the attitude similarity and attraction link (SAL) of social

psychology (Byrne, 1971, 1997) might also be explained by trust in the partner (Singh et al.,

2015). In five experiments, attitude similarity between the participant and the partner was

manipulated and the former's attraction toward the latter was measured. Evidence for

mediation was obtained by measuring the mediating variable (MV) of trust before the

dependent variable (DV) of attraction and then predicting the DV from both the independent

variable (IV) of attitude similarity and the measured MV of trust (Kenny, Kashy, & Bolger,

1998). Trust was measured alone, alongside another previously known mediator of positive

affect in the participants (Byrne & Clore, 1970), inferred attraction of the partner toward the

participants (Condon & Crano, 1988), or respect for the partner (Montoya & Horton, 2004),

and with all three of them. In each case, the SAL was weakened when both the IV and the

MV of trust predicted the DV. Thus, it was concluded "… that trust should be considered as a

key mediator of the SAL" (Singh et al., 2015, p. 20).

We contend that the foregoing conclusion needs more solid evidence than that

reported so far. The correlational nature of the data precludes conclusive causal flow from

trust to attraction (Fiedler, Schott, & Meiser, 2011; Spencer, Zanna, & Fong, 2005). While

support for mediation did come from the multi-equation regression framework (Kenny et al.,

1998), rejection of the reverse effect of attraction on trust remained unaddressed. The issue of

reverse-causation (Kenny et al., 1998) is too serious to ignore, for the effects of similar

attitudes and/or positive evaluations on respect, another mediator of the SAL (Montoya &

Horton, 2004), were previously mediated by attraction as well (Singh, Ho, Tan, & Bell, 2007;

Singh, Lin, Tan, & Ho, 2008). Given these methodological ambiguities, the demonstrated importance of trust in interpersonal and group relationships (e.g., Cottrell, Neuberg, & Li, 2007; McAleer, Todorov, & Belin, 2014; Montoya & Insko, 2008; Murray & Holmes, 2009), and the centrality of trust in a general model of attraction (Montoya & Horton, 2014), it is necessary to make trust an unambiguous mediator of the SAL.

To overcome the shortcomings of the measurement-of-mediator design, Spencer et al. (2005) recommended manipulating the MV with the IV. That is, the IV-DV link should be weakened or nullified when the MV is crossed with the IV. Such outcome is not achievable as easily as it might seem for a host of other complications (Bullock, Green, & Ha, 2010). Thus, evidence for mediation from a measurement-of-mediator design is nowadays required to be corroborated in other ways, including experimentation (Smith, 2012). We report such evidence for mediation of the SAL by trust, using a unique combination of the experimental and measurement-of-mediator designs in the same study.

To demonstrate that similar *versus* dissimilar attitudes determine attraction to the extent they differ from assumed similarity of attitudes with the partner, Chen and Kenrick (2002) employed a two-stage design. At Time 1, participants learned that partner belonged to their in-group or out-group by a social category, inferred what might be attitudes of the partner, and then indicated their attraction. At Time 2, participants examined an attitude survey that had views surreptitiously made similar to or dissimilar from their own in a previously completed attitude survey and then expressed final attraction. Assumed similarity of attitudes with the in-group *versus* out-group partner did moderate similarity-attraction and dissimilarity-repulsion in the final attraction

We saw great merit in such a two-stage design for yielding a much clearer evidence for mediation of the SAL by trust than previously reported. Specifically, attitude similarity with (IV_1) and trustworthiness of (IV_2) the partner should be manipulated at Time 1 and Time

2, respectively. Moreover, the MV of trust should be assessed after each such manipulation and before measuring attraction. If trust carries attitude similarity effects to attraction, IV_1 should influence $Trust_1$ and $Attraction_1$ of Time 1 (Singh et al., 2015). Because IV_2 is another form of the MV of trust and is administered next, IV_2 should influence the succeeding $Trust_2$ and $Attraction_2$ responses of Time 2 but not $Trust_1$ and $Attraction_1$ of Time 1. Given past evidence for mediation of the SAL by trust, IV_1 should still contribute to $Trust_2$ but become redundant for $Attraction_2$ because of the manipulated trust (Spencer et al., 2005). Such patterns of significant and nonsignificant effects of the IV_1 and IV_2 on the trust and attraction responses measured at the two occasions might provide a much neater experimental evidence for mediation of the SAL by trust than that from the previously employed multi-equation regression framework with the data from a measurement-of-mediator design.

We saw another virtue with employing such a sequential design. As $Trust_1$, $Attraction_1$, $Trust_2$, and $Attraction_2$ would come from different IVs administered at different occasions, it should be possible to trace the specific effects of the two IVs and the first three measured variables on $Attraction_2$, using structural equation modeling (SEM) (MacCallum & Austin, 2000). In Singh, Chen, and Wegener (2014), for example, the SAL was represented much better when positive affect, respect, and inferred attraction were treated as sequential processes (i.e., each MV also building upon each other) rather than parallel processes (i.e., each MV acting independent of others) in SEMs. Likewise, positive affect seemingly transmitted attitude similarity effects to attraction via the succeeding MVs of inferred attraction and/or trust (Singh et al., 2015, Note 5) in sequential mediation analyses (Hayes, 2013). Accordingly, we specifically predicted that $Trust_1$ should predict $Trust_2$ and $Attraction_2$ and that $Attraction_1$ should predict $Attraction_2$ (i.e., similar processes and/or causes lead to subsequent effects) but not $Trust_2$ (i.e., no reverse-causation).

Method

Participants and design

Seventy-two female students from a public university in Southeast Asia participated to fulfill their requirements for an introductory psychology module. The design was a 2 (attitude similarity: dissimilar *vs.* similar) x 2 (partner's trustworthiness: untrustworthy *vs.* trustworthy) between-participants factorial (ns = 18 per cell).

Attitude similarity manipulation

Attitudes were operationalized as responses to a 12-item attitude survey. Participants indicated their support (i.e., *slightly for, moderately for,* or *strongly for*) or opposition (i.e., *slightly against, moderately against,* or *strongly against*) to each of those controversial issues by selecting one of the six choices, without the neutral point (Byrne, 1971). The issues used were *environmental protection*, *integrated resorts*, *retirement age*, *use of social networking websites*, *abortion*, *number of seats for foreign students in the public universities*, *protests and demonstrations*, *women in politics*, *demolishment of old buildings*, *compulsory accommodation on campus*, *gay and lesbian rights*, and *cohabitation*.

Based on the participant's responses to the first attitude survey, we prepared a bogus survey. Similar attitudes were on the same side of the scale and exactly one level upward or downward from the participant's own response to an issue. However, dissimilar attitudes were three levels away from the participant own responses and on the other side of the scale.

Response measures

In a Partner's Opinion Questionnaire (POQ), we included three *trust* items (i.e., *My partner would act benevolently toward me*; *... make me feel secure;* and *... look out for my interests)* and three *attraction* items (i.e., *I would like to meet my partne*r; *I look forward to meeting my partner*; and *... get to know this person better*). We used three of the four previously used items of the two constructs (Singh et al., 2015) because they yielded better reliability

coefficients than the original four items in subsequent studies. All items had 7-point Likert scales anchored by 1 (*strongly disagree*) and 7 (*strongly agree*).

Procedure

We conducted the study in two sessions. In the first session, participants completed an attitude survey, and signed up for the second session of interaction with a stranger.

In the second session, we informed the individual participant that they would be interacting with another female student on a project. Before meeting her, however, "some judgments of that unknown student have to be made from the information presented." At Time 1, participants examined the bogus attitude survey for 2 min, formed an opinion of the partner for 1 min, responded to the POQ items, and then returned the completed booklet to the experimenter.

At Time 2, we provided the participant with alleged opinions of four other students who had previously worked with her prospective partner in another experiment requiring mutual cooperation. The four opinions indicated how trustworthy they had found the person to be. Along a 7-point scale of trustworthiness (1 = *strongly disagree*; 7 = *strongly agree*), the four ratings were 5, 6, 6, and 4 for a trustworthy partner but 3, 2, 2, and 4 for the untrustworthy one. To enhance realism of the manipulated opinions, ink-colors of the ratings were different. After knowing those opinions, participants rethought about the partner for 1 min and then responded to the POQ items again.

After collecting the second completed POQ, the experimenter informed the participants that there was no interaction session scheduled. Before terminating the session, moreover, the experimenter debriefed the participants fully.

Results

Tests of the measurement model

To distinguish $Trust_1$ from $Attraction_1$, we performed a two-factor confirmatory factor

analysis (CFA) of the six Time 1 responses in AMOS with a correlation between the two

factors. The two-factor measurement model provided a good fit to the data: $\chi^2(8) = 10.44$, $p =$

.24, non-normed fit index/Tucker-Lewis index (NNFI/TLI) = .97, incremental fit index (IFI)

= .99, root mean square error of approximation (RMSEA) = .07, standardized root mean

residual (SRMR) = .04. A similar CFA of the six Time 2 responses also yielded a good fit,

$\chi^2(8) = 12.35$, $p = .14$, NNFI/TLI = .97, IFI =.99, RMSEA = .09, SRMR = .05. Thus, we

regarded trust and attraction as empirically distinct constructs.

The Cronbach alphas (αs) of the trust and attraction responses of the two occasions

ranged from .76 to .93 (see Table 1). Thus, we averaged responses to the three respective

trust and attraction items to form separate composite measures. The scores ranged from 1

(*lowest*) to 7 (*highest*) along each measure. The correlations among the measures of both

occasions reported in Table 1 indicate that the two constructs are correlated but distinct.

Table 1. Reliability of and correlation between responses at Time 1 and Time 2

Time and responses	Time 1		Time 2	
	$Trust_1$	$Attraction_1$	$Trust_2$	$Attraction_2$
Time 1				
$Trust_1$	.81	.41**	.58**	.55**
$Attraction_1$		.76	.29*	.46**
Time 2				
$Trust_2$			.82	.55**
$Attraction_2$				.93

Note. The corresponding α is listed along the diagonal. The subscripts 1 and 2
refer to measures taken at Time 1 and Time 2, respectively. $df = 70$; *$p \leq .05$;
**$p \leq .01$.

Experimental tests of mediation

In Table 2, we present means (*M*s) and standard deviations (*SD*s) of the trust and attraction responses to the two IVs at Time 1 and Time 2. As can be inferred, the causal flows of the IVs are seemingly from Time 1 to Time 2 and not vice versa. Importantly, attitude similarity of Time 1 influenced the supposedly MV of $Trust_2$ but not the DV of $Attraction_2$ because the additional explicit information about the MV of trustworthiness was also available at Time 2.

Table 2. Means and *SD*s of trust and attraction at Time 1 and Time 2

	Attitudes		Trustworthiness	
	Dissimilar	Similar	Untrustworthy	Trustworthy
Time 1				
$Trust_1$	4.44^b	5.24^a	4.69	4.99
	(0.91)	(0.57)	(0.99)	(0.66)
$Attraction_1$	4.04^b	4.68^a	4.37	4.34
	(0.86)	(0.63)	(1.00)	(0.59)
Time 2				
$Trust_2$	4.18^b	4.89^a	3.94^b	5.13^a
	(1.03)	(0.91)	(1.01)	(0.61)
$Attraction_2$	4.16	4.50	4.04^b	4.70^a
	(1.18)	(0.93)	(1.36)	(0.52)

Note. The value below the *M* is the corresponding *SD*. The two column means with different superscripts differ significantly at $p \leq .05$. *n*s = 36 per cell.

We performed four separate 2 x 2 (attitude similarity x partner's trustworthiness) analyses of variance (ANOVAs) on the trust and attraction responses of Time 1 and Time 2 to check on the foregoing interpretations. As predicted, only attitude similarity had significant effects on both $Trust_1$, $F(1, 68) = 20.48$, $p < .001$, $\eta_p^2 = .23$, and $Attraction_1$, $F(1, 68) = 12.66$, $p < .001$, $\eta_p^2 = .16$. Similarly, the partner's trustworthiness had significant effects on $Trust_2$, $F(1, 68) = 43.81$, $p < .001$, $\eta_p^2 = .39$, and $Attraction_2$, $F(1, 68) = 7.64$, $p = .007$, $\eta_p^2 = .10$. More interestingly, attitude similarity that had a significant effect on $Trust_2$, $F(1, 68) = 15.61$, $p < .001$, $\eta_p^2 = .19$, had nonsignificant effect on $Attraction_2$, $F(1, 68) = 3.12$,

$p = .08$, $\eta_p^2 = .04$. While attitude similarity effects on $Trust_1$ (.23) and $Trust_2$ (.19) were nearly equal, those on $Attraction_2$ (.04) were only $1/4^{th}$ of the original effects on $Attraction_1$ (.16). This redundancy of attitude similarity for $Attraction_2$ in front of the manipulated trust is a solid experimental evidence for mediation (Spencer et al., 2005) of the SAL by trust (Singh et al., 2015). None of the four responses had significant Attitude similarity x Partner's trustworthiness effect, $Fs(1, 68) \leq 1.60$, $ps \geq .21$, $\eta_p^2 s \leq .02$.

SEM

We tested a path model for $Attraction_2$ in which the predictors were the IV_1 of attitude similarity (coded as 1 for similarity and 0 for dissimilarity), IV_2 of the partner's trustworthiness (coded as 1 for trustworthy and 0 for untrustworthy), and the three previously measured responses of $Trust_1$, $Attraction_1$, and $Trust_2$ in AMOS. We designate $Trust_1$, $Attraction_1$, and $Trust_2$ as MV_1, MV_2, and MV_3, respectively, because they preceded $Attraction_2$. The fit of the model to the data was good, $\chi^2(4) = 5.58$, $p = .23$, NNFI/TLI = .96, IFI =.99, RMSEA = .08, SRMR = .05. We display the path coefficients in Figure 1.

Four results stand out. First, attitude similarity of Time 1 reliably predicted $Trust_1$, $t = 4.48$, $p < .01$, which in turn predicted $Attraction_1$, $t = 2.48$, $p = .01$, replicating the results of Singh et al. (2015). Moreover, the partner's trustworthiness of Time 2 reliably predicted $Trust_2$, $t = 6.69$, $p < .01$, which in turn predicted the $Attraction_2$, $t = 2.16$, $p = .01$. Second, $Trust_1$, $t = 2.69$, $p < .01$, and $Attraction_1$, $t = 3.14$, $p < .01$, also reliably predicted $Attraction_2$. Third, $Trust_1$, $t = 5.26$, $p < .01$, but not $Attraction_1$, $t = 1.36$, $p = .17$, predicted $Trust_2$, which makes trust an unambiguous mediator of the SAL. Finally, the MVs of $Trust_1$, $Attraction_1$, and $Trust_2$ nullified the direct effects of IV_1, $t = -1.73$, $p = .08$, and IV_2, $t = 0.82$, $p = .41$, on $Attraction_2$. Collectively, then, these results indicate that the SAL was mediated by trust and not vice versa.[1]
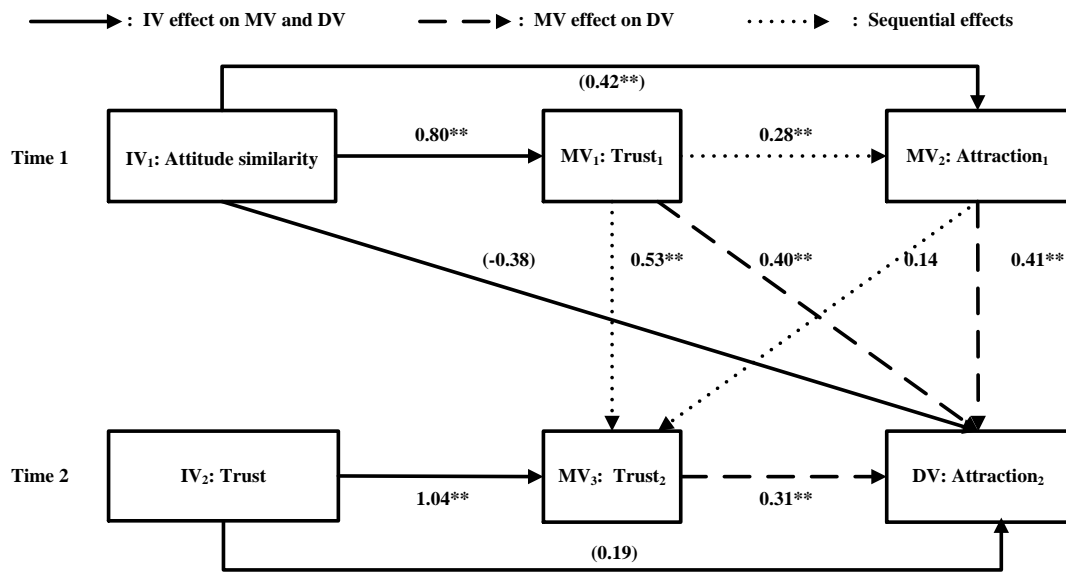
Figure 1. The path coefficients from the structural equation modeling of Attraction$_2$ on the two IVs manipulated at Time 1 and Time 2 and the preceding measured MVs of Trust$_1$, Attraction$_1$, and Trust$_2$. The subscripts 1 and 2 refer to the responses measured at Time 1 and Time 2, respectively. $**p \leq .01$.

Discussion

Findings confirm trust as a mediator of the SAL in two notable ways. First, attitude similarity that otherwise draws people together does not do so when it is experimentally pitted against trust. Such seeming redundancy of attitude similarity arises from activation of the intermediary process of trust by it and further validation of that process by the manipulated trustworthiness of the partner. Recall that attitude similarity had about the same impact on Trust$_1$ and Trust$_2$ that refutes the earlier raised doubt about relevance of similarity among the list of most important characteristics, including trust, in assessing others as ideal partners (Cottrell et al., 2007).

Second, and no less important, Trust$_1$, Attraction$_1$, and Trust$_2$ predicted Attraction$_2$ but Attraction$_1$ did not predict Trust$_2$. Evidence (a) for the seeming causal flow from trust to attraction and (b) against the reverse-causation from attraction to trust from the very same study jointly put the causal role of trust in relationship formation on a more solid basis than those of previous studies (Cottrell et al., 2007; Montoya & Insko, 2008; Singh et al., 2015).

Accordingly, trust can well be regarded as a key causal component in the general model of attraction (Montoya & Horton, 2014).

Previous studies (Singh, Yeo, Lin, & Tan, 2007; Singh et al., 2014) raised the possibility of sequential dependency among the mediators of the SAL. Furthermore, positive affect and trust emerged as mediators distal and proximal to attraction in sequential mediation tests (Singh et al., 2015). In SEM of $Attraction_2$, therefore, we included the preceding responses of $Trust_1$ and $Attraction_1$ as if they were additional mediators of $Attraction_2$. By opening these paths, we not only eliminated the reverse-causation possibility but also found sequential effect of $Trust_1$ on $Trust_2$ and that of $Attraction_1$ on $Attraction_2$.[2] Although interest in sequential effects of attitudes on attraction was shown from time to time (Byrne, Lamberth, Palmer, & London, 1969; Chen & Kenrick, 2002; Singh et al., 2007, 2008), effects of the preceding responses on the succeeding similar responses were never pursued in ways reported by us. Given the advances in research methods and data analyses (Hayes, 2013), we consider modeling of the role of the preceding responses in the formation and maintenance of existing relationships as important challenges to future relationship researchers.

Notes

1. In another SEM, we treated attraction and trust as the MV and the DV, respectively. The fit indices were satisfactory but the direct effect of IV_1 on $Trust_1$, $t = 3.13$, $p < .01$, and that of IV_2 on $Trust_2$, $t = 6.13$, $p < .01$, were significant ($ps < .01$), suggesting a greater proximity of trust than of attraction to attitude similarity. Further, $Attraction_1$ did not predict $Trust_2$, $t = 0.15$, $p = .88$.

2. When we blocked the $Trust_1 \rightarrow Trust_2$ and $Attraction_1 \rightarrow Attraction_2$ paths in another SEM, the fit indices suffered miserably (e.g., RMSEA = .27, SRMR = .15). Worse, the direct effects of IV_1 and IV_2 and the sequential effect of $Attraction_1$ on $Trust_2$ became statistically significant which hardly made any sense.

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