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The appraisal similarity effect: how social appraisals influence liking

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The Appraisal Similarity Effect: How Social Appraisals Influence Liking

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Abstract

The effects of cognitive appraisals on interpersonal relationships have hardly been studied. Three experiments examined how empathic social appraisal could influence liking. We tested for the appraisal similarity effect in which perceived similarity in appraisals boosts liking. In Experiment 1, perception of appraisal similarity led participants to express liking by disclosing personal contact information. This effect was replicated using a self-report measure of liking in Experiments 2 and 3. Also, by independently manipulating attitude similarity, the appraisal similarity effect was deactivated under perceived attitude dissimilarity. Likewise, the robust attitude similarity effect was invalidated under perceived appraisal dissimilarity. In Experiment 3, the perception of validated personal beliefs mediated this interactive effect in a moderated mediation scenario, and the appraisal similarity effect.

Keywords: appraisal, social appraisal, liking, similarity, attitude, validation

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Appraisal theories posit that we view the world in *appraisal* dimensions (Ellsworth & Scherer, 2003; Frijda, 1986; Lazarus, 1991; Oatley & Johnson-Laird, 1987). For instance, we may appraise an event in terms of how pleasant it is (pleasantness), who causes it (agency), and how much control we have over it (control). This multi-dimensional evaluation is posited to influence emotion. For instance, appraising events as within control inspires confidence, while perceiving events as unfair provokes anger. Research has provided strong evidence of appraisal-emotion relationships (e.g., Ellsworth & Smith, 1988a, b; Neumann, 2000; Scherer, 1997; Smith & Ellsworth, 1985, 1987). However, appraisals affect more than just emotions. Since they facilitate adaptation (Nesse & Ellsworth, 2009), they should also impact psychological processes widely. Indeed, appraisals have been found to influence numerous other outcomes such as inter-group conflicts (Mackie, Devos, & Smith, 2000), punishment allocation (Evers, Fischer, Rodriguez-Mosquera, & Manstead, 2005), and persistence (Shah, 2003).

However, the appraisals commonly examined in appraisal research are self-oriented (Evers et al., 2005; Hareli & Parkinson, 2008; Manstead & Fischer, 2001). Appraisal models generally focus on how events are perceived to impact the goals and needs of the self, rather than those of other people. Empirical research typically examines how the environment affects the self but not how it impacts others. Hence, little is known about the various kinds of *social appraisals* concerning, for instance, how the situation affects another person, how this person responds, how we compare against someone else, and whether social norms are violated (Manstead & Fischer, 2001). Appraisal theorists have also stated that appraisal studies have not covered all appraisals, including social appraisals (e.g., Manstead & Fischer, 2001; Reisenzein & Hofmann, 1993; Roseman, Antoniou, & Jose, 1996).

According to Manstead and Fischer (2001), two social appraisals have been particularly neglected. The first concerns perceived interpersonal consequences of one's behavior (Evers et al., 2005). For instance, if

we believe that venting our anger on others can cause them to stay away from us, we may not express our anger (Evers et al. 2005; Fischer & Evers, 2011). The second, which is the focus of the current research, refers to the appraisal of how other people are appraising an event, which we call *empathic social appraisal* (Jakobs, Manstead, & Fischer, 1999, 2001; Manstead & Fischer, 2001). For instance, besides our own appraisal that a suspect is responsible for a certain crime, we may try to know how another person is appraising the culpability of this suspect. Empathic social appraisal is thus an attempt to read the minds of others and infer their appraisals of the target object that we are also appraising. Such inference processes emerge early in life as early as three years (Borke, 1971; Piaget, 1932), and are processed using a wide range of verbal and non-verbal cues (Hall & Schmid Mast, 2007; Scherer, Banse, & Wallbott, 2001). It holds adaptive societal significance to the extent that altruistic impulses are activated as a consequence of appraising that another person requires assistance (De Waal, 2008).

Our aim is to examine one possible consequence of empathic social appraisal, focusing on interpersonal liking in the context of the similarity attraction effect. Liking reflects one's global valence-based feelings towards a social target. Appraisal research on liking is sparse, but available evidence suggests that liking is associated with the appraisals of motive-congruency and high control (Roseman, Antoniou, & Jose, 1996). Also, people tend to like those whom they perceive as similar to them (e.g., Botwin, Buss, & Shackelford, 1997; Klohnen & Luo, 2003). A well-researched phenomenon is the attitude similarity effect, in which a social target is liked more if he/ she holds similar attitudes towards an object as the self (Byrne & Clore, 1970; Byrne & Nelson, 1965). In this research, we examined whether liking is boosted upon knowing, through the process of empathic social appraisal, that the self and another share similar appraisals, and whether this effect is distinct from the attitude similarity effect. Also, we examined whether both effects are contingent on each other and tested a psychological mechanism underlying these effects.

The Appraisal Similarity Effect

The *appraisal similarity effect* states that interpersonal liking increases as a function of the perceived similarity between one's appraisal of an object and one's empathic social appraisal of how another is appraising the same object. As an illustration, imagine two individuals (subject and social target) are appraising whether a third party can control a challenging situation. Suppose also that it is unclear whether this third person has the ability to cope with the stressor, meaning that the subject and the social target can have similar or different appraisals of how much control this third person has over the situation. According to the appraisal similarity effect, if the subject appraises that the social target holds similar appraisals of the third person (i.e., perceived appraisal similarity) as he/ she does, he/ she will like the social target more than if the social target is appraised as appraising the third person differently (perceived appraisal dissimilarity). Three experiments were conducted to test the appraisal similarity effect. We also addressed the following issues.

Appraisal similarity vs. attitude similarity. An important question is whether the appraisal similarity effect is similar to the attitude similarity effect. Both involve empathic inferences, but there are notable differences. Attitudes are global valence-based assessments, summarizing one's overall impression of an object, whereas appraisals are fine-grained analyses of the object on meaning-specific dimensions such as agency and morality. To our knowledge, there is no

empirical evidence to suggest that both are necessarily positively correlated, or that perception of attitude similarity (or dissimilarity) is associated with perception of appraisal similarity (dissimilarity). Conceptually, it is possible for appraisal similarity to be independent of attitude similarity. Using the same example, even if the subject and social target agree with each other that the third person is able to control the situation (appraisal similarity), they can still have diverging attitudinal judgments for this third person (one is impressed with the capability of third person, but the other is unmoved; attitude dissimilarity). The opposite can also happen: both have good impressions of the third person (attitude similarity), even though they appraise the third person in different ways (appraisal dissimilarity). In Experiment 2, we manipulated appraisal similarity and attitude similarity orthogonally, and checked for cross-manipulation influences; i.e., whether the manipulation of appraisal similarity affected perceived attitude similarity and whether the manipulation of attitude similarity affected perceived appraisal similarity.

Interaction between appraisal similarity and attitude similarity. In Experiments 2 and 3, we examined how appraisal similarity and attitude similarity interact to influence liking. The appraisal similarity effect was examined separately under conditions of attitude similarity and attitude dissimilarity. We expected to find a highly robust appraisal similarity effect when attitude was perceived as similar (i.e., higher liking in the similar appraisals/ similar attitude condition than in the dissimilar appraisals/ similar attitude condition). This is hardly surprising given the double doses of similarity in the similar appraisals/similar attitude condition.

Of greater interest is what might be found in the attitude dissimilarity condition. The appraisal similarity effect might still exist in the attitude dissimilarity condition, suggesting that the perception of shared appraisals continued to enhance interpersonal liking relative to the perception of non-shared appraisals even when attitude was perceived as dissimilar. However, attitude is a person's fundamental and overall judgment of the object. Perception of differing attitudes could signal to partners that there exist significant differences between them. Also, consistent with the negativity bias (e.g., Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001; Rozin & Royzman, 2001), there is strong evidence that dissimilarity exerts disproportionally larger weights than similarity on liking (Singh & Ho, 2000; Singh & Teoh, 1999). The similarity-dissimilarity asymmetry implies that liking that would otherwise be enhanced by perceived appraisal similarity could be substantially attenuated by perception of differences in attitude. Hence, we predicted that the appraisal similarity effect should be weakened when attitudes are perceived as dissimilar. This will suggest that the appraisal similarity effect is contingent on attitude similarity; i.e. it can be deactivated when attitude is perceived as dissimilar. The similarity-dissimilarity asymmetry can also imply that under appraisal dissimilarity, the attitude similarity effect should be significantly reduced, indicating that the robust attitude similarity effect might also depend on perceived appraisal similarity.

Mediating role of perceived validation. In Experiment 3, we examined whether perceived sense of validation could be driving the appraisal similarity effect, as well as the interactive effect between appraisal similarity and attitude similarity (if any) on liking. Knowing that others share similar beliefs as the self is reassuring and satisfying because it reinforces the legitimacy of personal beliefs (Clore & Gormly, 1974; Festinger, 1954;

Manstead & Fischer, 2001; Schachter, 1959). These good feelings can be elicited in the company of similar others, enhancing liking towards them (Byrne, 1971; Byrne & Clore, 1970). On the other hand, liking for dissimilar others tends to be reduced because disparate views invalidate and threaten personal beliefs. This sense of validation has been found to explain the attitude similarity effect (Byrne & Clore, 1970), and we posited that it can also mediate the appraisal similarity effect. Hence, we predicted that perceived validation should mediate the relationship between appraisal similarity and interpersonal liking. Also, since perceived validation should mediate both the appraisal similarity effect and attitude similarity effect, we predicted a moderated mediation effect in which the interaction effect of appraisal similarity and attitude similarity on liking (if any) should be mediated by perceived validation.

Overview of Studies

We employed the classic phantom-other technique (Byrne & Nelson, 1965) in all experiments. Participants read a vignette and made their own appraisals of the protagonists on two appraisals relevant to the scenarios. In Experiment 1, the appraisals examined were agency and morality; in Experiments 2 and 3, they were agency and control. To manipulate appraisal similarity, participants were subsequently shown (fabricated) copies of the same appraisal measure allegedly completed by a fictitious participant (the social target). Similarity (dissimilarity) in appraisals was manipulated by making these bogus responses agree (disagree) with the participants' own appraisal ratings. In Experiments 2 and 3, we also manipulated attitude similarity using the same technique. Thereafter, liking for the partner was measured, operationalized using different methods: behavioral indications in Experiment 1, and self-report in Experiments 2 and 3.

EXPERIMENT 1

In Experiment 1, appraisal similarity was first manipulated, after which participants were given the option of disclosing their contact information (email address and telephone number) to a bogus partner. We reason that people generally will not disclose contact information to a stranger unless they feel some liking towards the person. Hence, we hypothesized that participants in the similar appraisals condition would be more likely than those in the dissimilar appraisals condition to disclose their contact details. As a secondary objective, we also examined how the disclosures of email address and mobile number were differentially affected by appraisal similarity. Personal mobile numbers are generally regarded as more confidential than email addresses in the local population. While we predicted that perceived appraisal similarity would encourage disclosure of both contact information, participants should be more willing to disclose their email address than their mobile number.

Method

Participants. Ninety-six Singaporean undergraduates (74 females; M_{age} = 20.13, SD = 1.60) participated for course credits. They were randomly assigned to one of two appraisal similarity conditions: similar appraisals (N = 49) and dissimilar appraisals (N = 49).

Procedure. Participants completed the study in private cubicles. They first read a passage (see Appendix) allegedly extracted from a journal entry written by an anonymous undergraduate. The vignette described a negative incident that was ambiguous in the sense that different agency and morality appraisals could be made of the two

protagonists. Next, participants rated their morality and agency appraisals of the protagonists (Raymond and Gary). We told them that we were interested in their "evaluation" of the protagonists. The labels "evaluation" and "evaluate" were used in our instructions because they should be more commonly used as compared to the more academic "appraisal" and "appraise". We collected the appraisal measures after they were completed. The participants then completed an irrelevant filler task (simple mathematical problems) while we used their appraisal responses to manipulate appraisal similarity.

We constructed fake ratings on a fresh copy of the appraisal measure in ways that gave the impression that it was completed by another person (e.g., handwritten index numbers, imperfect circling). A different fabricated copy was constructed for each participant, tailored according to his/ her experimental condition. For participants assigned to the similar appraisals condition, the fabricated responses were made on the same scale-point the participant made or one point away, and on the same side of the scale. For those in the dissimilar appraisals condition, the fabricated responses were made three or more scale-points from the participant's responses, and on the opposite side of the scale. If a participant selected the mid-point, the fabricated response were made on either side of the scale (randomly determined across participants), and the number of scale-points away from the midpoint depended on the participant's experimental condition. Although each appraisal was rated by two items, it did not matter whether both items were rated similarly or differently by the participant as the same procedure of manipulating appraisal similarity was applied.

After the filler task, participants were informed that they were randomly paired with a same-gender participant from a previous session, who had read the same vignette and made the same evaluation ratings. This bogus participant was presented as "Participant X". To prevent the word "partner" or actual names from eliciting unwanted connotations, we used a neutral "Participant X". We explained that we were interested in how people form impressions of strangers based on limited information. Hence, the fabricated evaluation form allegedly completed by Participant X, as well as their own evaluation form, was given to the participants. They were told to look at X's responses so as to get acquainted with him/her. They then rated the manipulation check items.

Next, the participants were asked whether they would like to meet Participant X after the experiment. If they were interested, they could indicate their personal contact information which would be passed to Participant X. They were presented with a piece of paper, and were told that they could write down their email address or mobile number, or both, or leave the paper blank; every participant owned a mobile phone and had email address. The participants were then left alone for a short while. They also completed suspicion probe items and demographic items. Two participants were removed as they were close to guessing the hypothesis, leaving a final sample of 96.

Measures.

Appraisals. Morality was measured with items reflecting judgments of right vs. wrong and fairness vs. unfairness. Participants rated the protagonists on "To what extent was what happened to Gary (i.e. him being injured) fair or unfair to him?" and "To what extent was Raymond's behavior towards Gary moral or immoral?". Agency was measured by items reflecting blame, which were "To what extent was Gary to be blamed for his back injury?" and "To what extent was Raymond

to be blamed for Gary's injury?". All items were rated on nine-point scales that ranged from 1 to 9 and were similar to those used in past appraisal studies (e.g., Smith & Ellsworth, 1985; Tong, 2010). Scales for the morality items ranged from *very unfair/ very immoral* to *very fair/ very moral*. Scales for the agency items ranged from *not at all* to *very much*.

Perceived appraisal similarity. As manipulation checks, participants rated "To what extent do you and Participant X have similar/ different evaluation about Raymond and Gary?" on two nine-point scales that ranged from 1 (*extremely different/ strong disagreement*) to 9 (*extremely similar/ strong agreement*). As the words 'evaluate' and 'evaluation' were repeatedly used to refer to the appraisal measure, it should be clear to the participants which measure we were referring to. All scores were averaged (α = .96).

Results and Discussion

We first checked for outliers of 2.5SD from the mean; none was found.

Manipulation check. A t-test showed that perceived appraisal similarity was higher in the similar appraisals condition (M = 7.11, SD = 1.24) than in the dissimilar appraisals condition (M = 3.04, SD = 1.34), $t(94) = 15.44$, $p < .001$, $d = 3.19$.

Main analyses. Across both conditions, most participants (79.8%) disclosed their email address, but less than half (47.9%) disclosed their mobile number. Also, 34.0% of the participants disclosed only their email address, whereas 2.1% disclosed only their mobile number (45.7% disclosed both information). In sum, there is evidence that participants were generally more willing to disclose their email address than their mobile number.

Two chi-square analyses were conducted, separately on email address and mobile number. Both analyses examined how the disclosure of contact information differed as a function of appraisal similarity. The analyses showed that participants in the similar appraisals condition (89.1% of the participants in this condition) were significantly more likely to disclose their email address to their partner than those in the dissimilar appraisals condition (70.8%), $\chi^2(1) = 4.88$, $p = .03$. Those in the similar appraisals condition (60.9%) were also more likely to disclose their mobile number than those in the dissimilar appraisals condition (35.4%), $\chi^2(1) = 6.10$, $p = .01$. Two McNemar tests were conducted, one for each appraisal similarity condition. Both analyses tested whether there was a significant difference between the disclosure of email address and the disclosure of mobile number. Participants in both the similar appraisals condition, $p = .001$, and the dissimilar appraisals condition, $p < .001$, were more likely to disclose their email address than their mobile number.

As predicted, participants in the similar appraisals condition were more likely to disclose their email address and mobile number to their partner than those in the dissimilar appraisals condition. Also, participants in both conditions were more likely to disclose their email address than their mobile number, consistent with the claim that mobile numbers are regarded as more confidential than email addresses. More pertinent to our hypothesis, participants who felt a sense of appraisal similarity were significantly more likely (compared to those who felt a sense of appraisal dissimilarity) to disclose even their mobile number to their partner. This finding suggests that appraisal similarity could enhance liking towards a largely unknown person to the point that confidential information would be disclosed. Also, it does

not seem likely that participants disclosed their contact details just to please the experimenter or to comply with instructions, since few in the dissimilar appraisal condition disclosed their mobile number. On the contrary, the results suggest that their behaviors were determined by their appraisal similarity condition.

EXPERIMENT 2

One objective of Experiment 2 was to replicate the findings in Experiment 1 using a validated measure of liking. While behavioral measures have strong appeals, including greater immunity from cognitive and response biases known to plague verbal measures (Kahneman, Krueger, Schkade, Schwarz, & Stone, 2004), their construct validity is of question. Disclosure of contact information might reflect, for instance, trust, risk taking, or impulsiveness, instead of liking. Hence, we used a widely used and highly validated measure of liking: the Interpersonal Judgment Scale (IJS; Byrne, 1971). We predicted higher IJS scores in the similar appraisals condition than in the dissimilar appraisals condition.

In addition, attitude similarity was orthogonally manipulated and cross-manipulation checks were conducted to assess the distinctiveness of appraisal similarity from attitude similarity. Specifically, we examined whether the manipulation of appraisal similarity would affect perceived attitude similarity, and whether the manipulation of attitude similarity would affect perceived appraisal similarity. We also examined whether the perception of appraisal similarity was correlated with the perception of attitude similarity. We further examined the interactive effect (if any) between appraisal similarity and attitude similarity on liking.

Experiment 2 also differed from Experiment 1 in other (minor) ways to assess the robustness of the findings. First, we examined control, a different appraisal, together with agency, to determine whether our findings could be generalized to other appraisals. Second, to ascertain that the results in Experiment 1 were not artifacts of the materials used, we used a different set of vignette materials with the changes being that different appraisal items were used, and only one protagonist was evaluated.

Method

Participants. One hundred and twenty-three female Singaporean undergraduates participated for course credit.[1] They were randomly assigned to the following conditions: similar appraisals/ similar attitude (n = 30), similar appraisals/ dissimilar attitude (n = 31), similar appraisals/ dissimilar attitude (n = 31), and dissimilar appraisals/ similar attitude (n = 31).

Procedure. Similar to Experiment 1, participants first read a passage (Appendix) allegedly written by an undergraduate. The passage featured one protagonist (i.e. Raymond) and was ambiguous in terms of how the protagonist could be appraised on agency and control. Participants then rated Raymond on two forms (the sequence of which was counterbalanced). One form was titled "Evaluation Form" (following Experiment 1), which contained the appraisal items; the other form was titled "Impression Form", which contained the attitude items. The participants then worked on a filler task while we constructed fake scores on new Evaluation and Impression forms to manipulate appraisal similarity and attitude similarity, respectively, using the same procedure from Experiment 1. Participants were then paired with a bogus same-gender "Participant X" using the same cover story. They were given fabricated Evaluation and Impression forms allegedly from X, along

with their own. After looking at X's scores, they completed manipulation check items, the IJS, and suspicion probe items. One participant was removed as she was close to guessing the hypothesis, leaving the final sample at 122 participants.

Measures.

Appraisals. The Evaluation Form contained two agency items ("To what extent do you think Raymond was responsible for the fact that all attendees were not seated on time?" and "To what extent do you think that Raymond was accountable for the fact that all attendees were not seated on time?") and two control items ("To what extent do you think that Raymond could have better control over the planning of this talk such that all attendees would be seated on time?" and "To what extent do you think that Raymond could have exerted more influence over the planning of this talk such that all attendees would be seated on time?"). They were rated on nine-point scales ranging from 1 *(not at all)* to 9 *(very much).*

Attitudes. The Impression Form contained two items ("To what extent do you agree/ disagree with Raymond on this plan?" and "To what extent are you in support/ not in support of Raymond on this plan?"). Both items were rated on nine-point scales that ranged from 1 *(extremely disagree/ extremely not in support)* to 9 *(extremely agree/ extremely in support)*. We modeled these items after those used in attitude research that asked respondents how much in favor they were of an attitude object, which in this case was Raymond with reference to his plan.

Perceived appraisal similarity. For manipulation checks, participants were asked to refer to their own and Participant X's Evaluation Forms and rated "To what extent do you think that you and Participant X have similar/ different evaluations of Raymond?" on two nine-point scales that ranged from 1 *(extremely different/ strong disagreement)* to 9 *(extremely similar/ strong agreement)*. The scores were averaged (α = .95).

Perceived attitude similarity. For manipulation checks, participants were asked to refer to their own and Participant X's Impression Forms and rated "To what extent do you think that you and Participant X have similar/ different impressions of Raymond?" on two nine-point scales that ranged from 1 *(extremely different/ strong disagreement)* to 9 *(extremely similar/ strong agreement)*. The scores were averaged (α = .97).

Liking. The ten-item IJS was adapted for this study (e.g., "I find Participant X likeable") and was rated on nine-point scales that ranged from 1 *(strongly disagree*) to 9 (*strongly agree*). All scores were averaged with opposite items reversed (α = .87).

Results and Discussion

2.4% of the data that were 2.5*SD* from the mean were excluded.

Manipulation checks. Participants in the similar appraisals condition (M = 7.03, SD = 0.91) were more likely to rate Participant X's appraisals as similar to theirs than those in the dissimilar appraisals condition (M = 2.76, SD = 0.78), $t(118) = 27.46$, $p < .001$, d = 5.06. In contrast, participants in the similar attitude condition (M = 4.94, SD = 2.30) did not differ from those in the dissimilar attitude condition (M = 4.84, SD = 2.33) in terms of perceived appraisal similarity, $t(118) = 0.23$, p = .82, d = 0.04. Perceived attitude similarity (M = 7.42, SD = 1.00) was higher in the similar attitude condition than in the dissimilar attitude condition (M = 3.10, SD = 1.07), $t(120) = 23.05$, $p < .001$, d = 4.21. In contrast, the similar appraisals condition (M = 5.27, SD = 2.35) and the dissimilar appraisals condition (M = 5.17, SD = 2.47) did not differ in perceived attitude similarity, $t(120) = 0.23$, p = .82, d = 0.02. These results indicate that our manipulations were effective in inducing only the intended

constructs. Manipulation of appraisal similarity affected only perceived appraisal similarity and not perceived attitude similarity, whereas manipulation of attitude similarity affected only perceived attitude similarity and not perceived appraisal similarity. Also, perceived appraisal similarity and perceived attitude similarity did not correlate with each other, $r(121) = .04$, $p = .68$. This supports the notion that participants could perceive similar appraisals but different attitudinal judgment concurrently held by their partner, or that the partner disagreed on appraisals but agreed on attitudinal judgment.

Main analyses. A 2 (appraisal similarity) × 2 (attitude similarity) ANOVA performed on the IJS scores revealed a significant main effect of appraisal similarity, $F(1, 116) = 7.73$, $p < .01$, $\eta^2 = 0.06$. The similar appraisals condition ($M = 56.17$, $SD = 8.51$) generated stronger liking towards X than the dissimilar appraisals condition ($M = 52.00$, $SD = 8.45$). A marginally significant effect of attitude similarity was also present, $F(1, 116) = 3.55$, $p = .06$, $\eta^2 = 0.03$. Participants in the similar attitude condition ($M = 55.56$, $SD = 9.81$) indicated liking X more than those in the dissimilar attitude condition ($M = 52.66$, $SD = 7.26$).

There was a significant interaction effect, $F(1, 116) = 5.63$, $p = .02$, $\eta^2 = 0.05$. Simple effect analyses showed that the similar attitude condition produced greater liking towards X than the dissimilar attitude condition under the similar appraisals condition, $t(57) = 3.28$, $p < .01$, $d = 0.87$), but not under the dissimilar appraisals condition, $t(58) = -0.33$, $p = .74$, $d = 0.09$. Therefore, the robust attitude-similarity effect was replicated only under appraisal similarity. Also, participants in the similar appraisals condition reported higher levels of liking towards X than those in the dissimilar appraisals condition under the similar attitude condition, $t(57) = 3.28$, $p < .01$, $d = 0.87$, but not under the dissimilar attitude condition, $t(59) = 0.33$, $p = .74$, $d = 0.09$. Hence, the appraisal similarity effect occurred only when attitudes were perceived as similar (see Figure 1).

Overall, these results indicate that attitude similarity did not enhance liking when coupled with appraisal dissimilarity. Likewise, appraisal similarity did not enhance liking when coupled with attitude dissimilarity. In addition, the significant main effect of appraisal similarity provides stronger support for the appraisal similarity effect.

EXPERIMENT 3

Experiment 3 was intended for several objectives. First, it aimed to examine whether the appraisal similarity × attitude similarity interactive effect obtained in Experiment 2 could be replicated. Second, we examined whether perceived validation mediated the appraisal similarity effect and the interactive effect on interpersonal liking. Third, the manipulation check items in Experiment 2 could have alerted participants to possible similarities/ differences between them and their phantom partners.[2] In Experiment 3, these items were dropped. Finally, in Experiment 2, the attitude items might be targeted at a behavior of the protagonist, whereas the appraisal items were targeted at the protagonist. In Experiment 3, both variables were standardized by having them targeted at the protagonist.

Method

Participants. One hundred and twenty-one Singaporean undergraduates (60 females; $M_{age} = 21.91$, $SD_{age} = 2.17$) participated for monetary reimbursement. They were randomly assigned to the similar appraisals/

similar attitude (n = 30), similar appraisals/ dissimilar attitude (n = 29), similar appraisals/ dissimilar attitude (n = 31), or dissimilar appraisals/ similar attitude condition (n = 31). In a preliminary analysis, the moderating effect of gender was tested in a 2 (appraisal similarity) × 2 (attitude similarity) × 2 (gender) ANOVA. Gender did not moderate the effect of appraisal similarity, effect of attitude similarity, and the interaction effect (all ps > .10). Gender was thus dropped from subsequent analyses.

Procedure. The procedure was largely identical to Experiment 2 except for the following changes. Participants answered attitude items that were worded to reflect attitude towards the protagonist. After looking at X's (fabricated) forms, they rated several measures that included the IJS and the perceived validation measure; sequence of the questionnaires was counterbalanced. Finally, no manipulation check item was administered.

Measures.

Appraisals. The same Evaluation Form from Experiment 2 was used.

Attitudes. Participants rated "To what extent do you like/ dislike Raymond?", "To what extent is your impression of Raymond favorable/ unfavorable?", "To what extent would you like/ dislike meeting Raymond?", and "To what extent is your attitude towards Raymond positive/ negative?" on nine-point scales that ranged from 1 *(extremely dislike/ extremely unfavorable/ extremely dislike/ extremely negative)* to 9 *(extremely like/ extremely favorable/ extremely like/ extremely positive)*.

Perceived validation. Participants rated "To what extent does X make you feel validated?", "To what extent does X make you feel affirmed?", and "To what extent does X make you feel rejected?" (reverse-coded) on seven-point scales that ranged from 1 (*not at all*) to 7 (*extremely*). Including the *rejected* item produced a low Cronbach's alpha (.50) hence it was dropped. The *affirmed* and *validated* items were averaged (α = .90).

Liking. Participants completed the same IJS scale (α = .85).

Results and Discussion

We first checked for outliers of 2.5SD from the mean; none was found.

Main analyses. A 2 (appraisal similarity) × 2 (attitude similarity) ANOVA performed on the IJS scores revealed a significant main effect of appraisal similarity, $F(1, 117) = 4.23$, $p = .04$, $\eta^2 = .04$. The similar appraisals condition (M = 5.04, SD = 1.26) generated stronger liking towards Participant X than the dissimilar appraisals condition (M = 4.64, SD = 1.02). A significant main effect of attitude similarity was also found, $F(1, 117) = 15.65$, $p < .001$, $\eta^2 = 0.11$. Participants in the similar attitude condition (M = 5.20, SD = 1.02) liked Participant X more than those in the dissimilar attitude condition (M = 4.46, SD = 1.17).

More importantly, there was a significant interaction effect, $F(1, 117) = 8.89$, $p < .01$, $\eta^2 = 0.07$. Simple effect analyses showed that participants in the similar appraisals condition reported higher levels of liking towards X than those in the dissimilar appraisals condition under the similar attitude condition, $t(58.93) = 4.01$, $p < .001$, d = 1.04, but not under the dissimilar attitude condition, $t(58) = -0.49$, $p = .62$, d = 0.13. Also, the similar attitude condition produced greater reported liking towards X than the dissimilar attitude condition under the similar appraisals condition, $t(57) = 4.61$, $p < .001$, d = 1.22, but not under the dissimilar appraisals condition, $t(60) = 0.82$, $p = .41$, d = 0.21. Therefore the results from Experiment 2 were replicated (Figure 2).

Mediation analyses. To examine whether the effect of appraisal similarity on

interpersonal liking was mediated by perceived validation, we employed non-parametric bootstrapping conducted on 5000 random samples (Preacher & Hayes, 2004). Appraisal similarity (similar appraisals = 1, dissimilar appraisals = -1) was entered as the predictor variable, liking as the outcome variable, and perceived validation as the mediating variable. The results revealed that the 95% bias corrected and accelerated confidence intervals (CI) for the indirect effect did not include zero (95% CI = 0.04; 0.21), which is evidence that perceived validation significantly mediated the effect of appraisal similarity on liking. As shown in Figure 3, the mediating effect of perceived validation was full given that the direct effect of appraisal similarity on liking was reduced to non-significance after including it.

To test whether the interaction effect of appraisal similarity and attitude similarity was mediated by perceived validation, we employed a moderated mediation analysis. According to Muller, Judd, and Yzerbyt (2005), three regression models should be tested:

$$DV = b_{10} + b_{IV}IV + b_{Mod}Mod + b_{IV*Mod}IV*Mod + e \quad \text{(Model 1)}$$

$$Med = b_{20} + b_{IV}IV + b_{Mod}Mod + b_{IV*Mod}IV*Mod + e \quad \text{(Model 2)}$$

$$DV = b_{30} + b_{IV}IV + b_{Mod}Mod + b_{IV*Mod}IV*Mod + b_{Med}Med + b_{Med*Mod}Med*Mod + e \quad \text{(Model 3)}$$

Where IV, DV, Mod, and Med refer to the independent variable (appraisal similarity; similar appraisals = 1, dissimilar appraisals = -1), dependent variable (liking), moderator (attitude similarity; similar attitude = 1, dissimilar attitude = -1), and mediator (perceived validation), respectively, and * denotes interaction between specific variables. Mediated moderation would be established if the following criteria are met (Muller et al., 2005). First, b_{IV*Mod} in Model 1 is significant. Second, b_{IV*Mod} in Model 2 is significant. Finally, in Model 3, b_{Med} is significant; a significant b_{IV*Mod} would indicate partial mediation whereas a non-significant b_{IV*Mod} would indicate full mediation. The results are shown in Table 1.

The above analyses demonstrated that the interaction effect between appraisal similarity and attitude similarity was significant. This satisfied Condition 1. When Model 2 was tested, there was a significant interaction effect between appraisal similarity and attitude similarity on perceived validation, satisfying Condition 2. When Model 3 was tested, perceived validation positively predicted liking, satisfying Condition 3. The interaction effect between appraisal similarity and attitude similarity on liking remained significant, indicating partial mediation effect of perceived validation.

General Discussion

The primary aim of this research was to provide an initial demonstration of how empathic social appraisal can influence interpersonal liking. We proposed and found evidence for the appraisal similarity effect in which perceived similarity in appraisal enhances liking. We strengthened evidence of this effect by operationalizing liking using both verbal and behavioral measurements. Further, we demonstrated that this effect is independent of the attitude similarity effect. We also found that under perceived dissimilarity in attitude, the appraisal similarity effect is weakened, and under perceived dissimilarity in appraisals, the robust attitude similarity effect is also weakened. Finally, we showed that perceived validation fully mediates the appraisal similarity effect, and partially mediates the interaction effect between both forms of perceived similarity on interpersonal liking.

In Experiment 1, we obtained the first evidence that similarity in appraisals can

boost interpersonal liking. Participants were more likely to disclose personal contact information to a bogus partner whom they perceived to hold similar appraisals as them, as compared to a partner whom they perceived to hold dissimilar appraisals. This finding was conceptually replicated in Experiments 2 and 3 using an established self-report measure of liking. Participants in the similar appraisal condition reported higher levels of liking towards the bogus partner than those in the dissimilar appraisal condition.

The use of behavioral and self-report data serves complementary purposes. Self-report methods are susceptible to various cognitive biases (Kahneman et al., 2004), whereas behavioral indicators present validity concerns. Consistent results from both measures could help to ascertain the veracity of the appraisal similarity effect. This multi-method approach also demonstrates the various facets of liking. Liking can be conveyed not only verbally, but also through physical actions. In Experiments 2 and 3, participants reported their levels of liking on questionnaire items, while those in Experiment 1 expressed their liking by sharing their contact details. Further, the use of two behavioral indicators reveals nuances of liking that would have been missed if only one indicator was used. While the similar appraisals participants were more inclined than the dissimilar appraisals participants to disclose both contact information, they (like their dissimilar appraisals counterparts) were less willing to disclose their mobile number than their email address. This finding also suggests that the appraisal similarity effect does not increase liking towards a stranger so much that any information will be unreservedly disclosed.

We also demonstrated that the appraisal similarity effect is distinct from the attitude similarity effect. Cross-manipulation check analyses in Experiment 2 revealed that the manipulation of appraisal similarity did not affect perceived attitude similarity, and neither did the manipulation of attitude similarity influence perceived appraisal similarity. Hence, empathically appraising a social target as having similar appraisals does not necessarily lead to perceiving the target as sharing similar attitudes, and perceiving the target as having similar attitudes does not necessarily result in appraising the target as sharing similar appraisals. The results also underscore the conceptual differences between attitudes and appraisals, the former being global valence-based evaluations and the latter being more focused meaning-specific analyses. The fact that our participants demonstrated independent responses between the appraisal and attitude items also suggests that lay persons can identify them as distinct forms of judgments.

In Experiments 2 and 3, the appraisal similarity effect and the attitude similarity effect were found to be contingent upon each other. The appraisal similarity effect was deactivated under attitude dissimilarity; likewise, the attitude similarity effect was deactivated under appraisal dissimilarity. Because attitude summarizes one's fundamental judgment of an object (Ajzen, 2001; Crano & Prislin, 2006; Krosnick & Petty, 1995), it is conceivable that relationships based on a convergence of attitude between partners can withstand perceived differences in other domains, including appraisals. However, this was not the case in our studies; perceived similarity in attitude no longer enhanced liking over perceived dissimilarity in attitude when the partner disagreed on appraisals. The findings may imply that appraisals can shape relationship strength in significant ways. When partners find that they see eye-to-eye on appraisals, it signals a strong alignment of views between them, which can potentially

enhance their relationship. However, if they disagree with each other on appraisals, it signals critical differences between them that can damage their relationship even if they agree on attitudinal judgment. According to our findings, and consistent with the similarity-dissimilarity asymmetry (Singh & Ho, 2000; Singh & Teoh, 1999), perception of differences in appraisals is strong enough to outweigh any advantage that perception of similarity in attitude has on enhancing liking.

A similar argument can be posited to explain why similar appraisals did not enhance liking relative to dissimilar appraisals when there was perceived dissimilarity in attitude. Perceived attitudinal differences signal significant interpersonal differences that undermine interpersonal liking. Even if a partner is perceived as appraising an object in similar ways, the fact that he/ she holds a dissimilar attitude is sufficient to hint at fundamental differences existing in the relationship. Therefore, perceived differences in attitudes can also negate the beneficial interpersonal effects of perceived appraisal similarity.

The perceived validation of personal beliefs was found to mediate the appraisal similarity effect. Positive reinforcement models indicate that attitude similarity enhances liking because the similar partner is perceived as affirming one's beliefs through his/ her similar attitudinal judgments (Byrne & Clore, 1970). Supporting these positive reinforcement perspectives, the current findings show that the reason why perception of appraisal similarity enhances liking is because it also affirms one's beliefs. This provides evidence that the validation effect also applies to appraisals. Given that both appraisal similarity and attitude similarity boost one's sense of personal validation, the conjecture could be made that the interaction effect between these two forms of similarity on interpersonal liking should also be mediated by perceived validation. Experiment 3 supports this conjecture. Another implication of these findings is that the similarity-dissimilarity asymmetry can also affect perceived legitimacy of personal worldviews. The negative impact of dissimilarity in eliciting doubts in individuals about their beliefs is stronger than the positive impact of similarity in assuring individuals of their beliefs. To our knowledge, this research is the first to show this effect to apply not just to interpersonal judgments, but also intrapersonal evaluations.

Our results should be interpreted with the limitations in mind. The current studies examined only a selected set of appraisals, and future research could examine whether manipulation of similarity in other appraisals (e.g., certainty) would result in similar effects on interpersonal liking. Also, the moderating role of appraisals on the relationship between appraisal similarity and attitude similarity itself could be examined. Specifically, it seems possible that appraisals with valence connotations (e.g., morality) are more likely to result in appraisal similarity correlating with attitude similarity than appraisals without or with weaker valence connotations (e.g., agency). For instance, if two individuals appraise a target as low (vs high) in morality (the extent to which the target's behavior was morally right), they might share similar negative (positive) attitudes towards the target. However, if these two individuals agree in appraising the target as high in agency-self (who is responsible for causing an event), they might not share similar attitude towards the target because the desirability of the outcome of the agency-self appraisal also depends on other appraisals (e.g., whether the event was wanted or unwanted). Another avenue for future research could be to provide participants their partner's personal contact information and examine whether they

would indeed initiate contact with that partner after the experiment (Reis, Maniaci, Caprariello, Eastwick, & Finkel, 2011). Finally, since emotions are known to be evoked by appraisals, it could be of interest to examine whether emotional similarity could mediate the liking effects found in our research. As stated, appraisal theories posit that emotions are associated with a specific pattern of appraisals. Hence, individuals sharing the same appraisals of the target are likely to also share the same associated emotions of the target. This similarity in emotions might mediate effects on liking. In addition, attraction research could also examine emotion outcomes other than the traditional liking variable. Individuals do not just like each other, they may also feel hopeful for each other, joy for each other, or angry at each other, depending on the appraisals they make. Appraisal theories offer a platform for predicting and understanding the diverse emotional responses relationship partners could feel towards one another.

In conclusion, while social appraisals have been examined for their effects on emotions, the roles they play in interpersonal liking are less understood. The current studies provide some initial data on this issue but further research is needed to delve deeper into how social appraisals may interact with other variables in interpersonal processes.

Footnotes

[1] Due to an error, age was not recorded. Like Study 1, the sample in this study comprised undergraduates completing the same introductory psychology classes. We expect no difference in age between the current participants and those in Study 1.

[2] We thank a reviewer for this suggestion.

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Appendix

Figure 1:
IJS scores as a function of appraisal similarity and attitude similarity (Experiment 2)

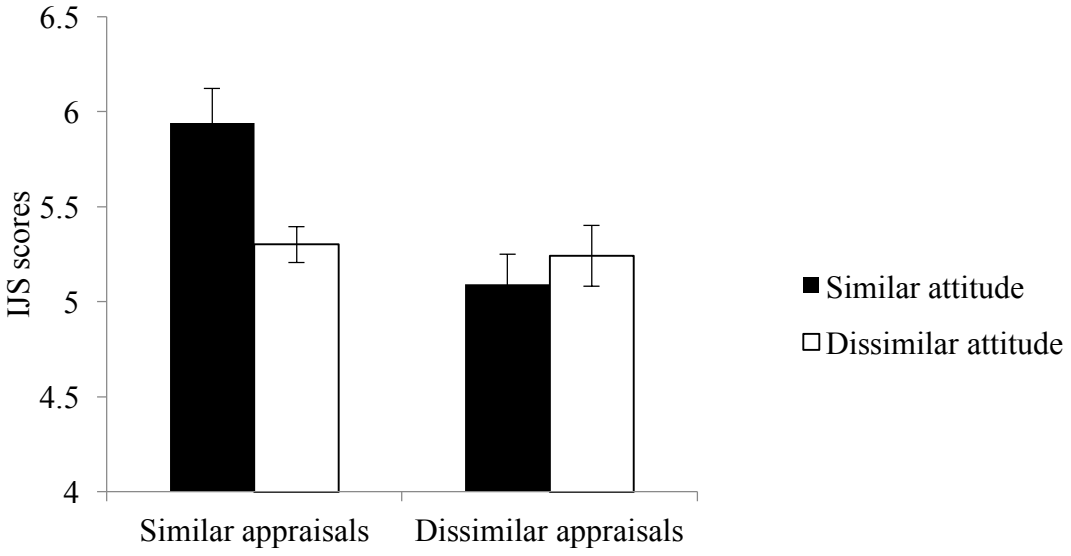


Figure 2:
IJS scores as a function of appraisal similarity and attitude similarity (Experiment 3)

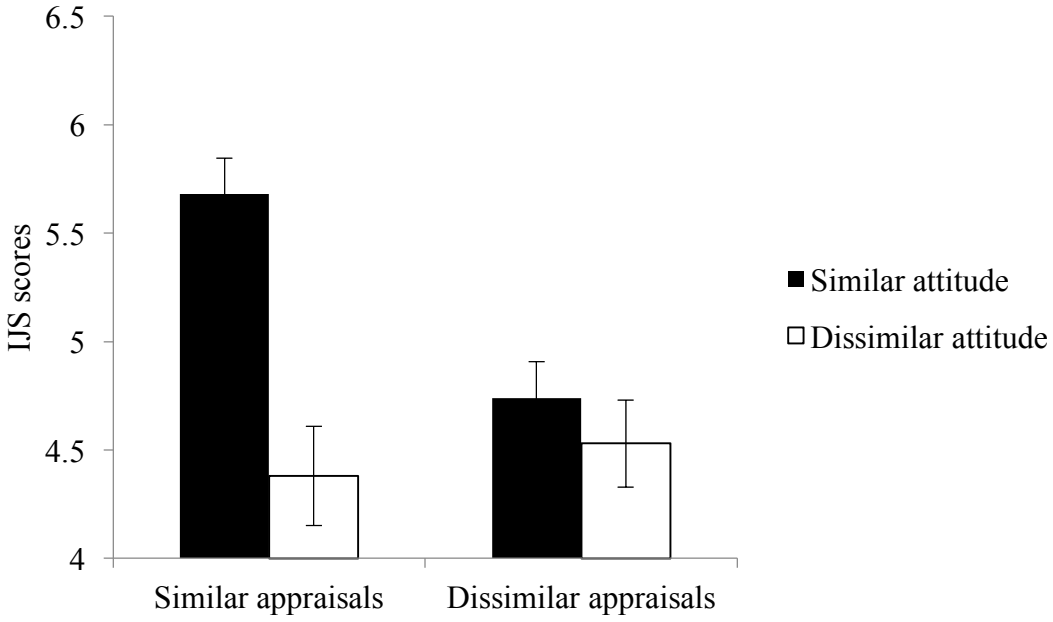
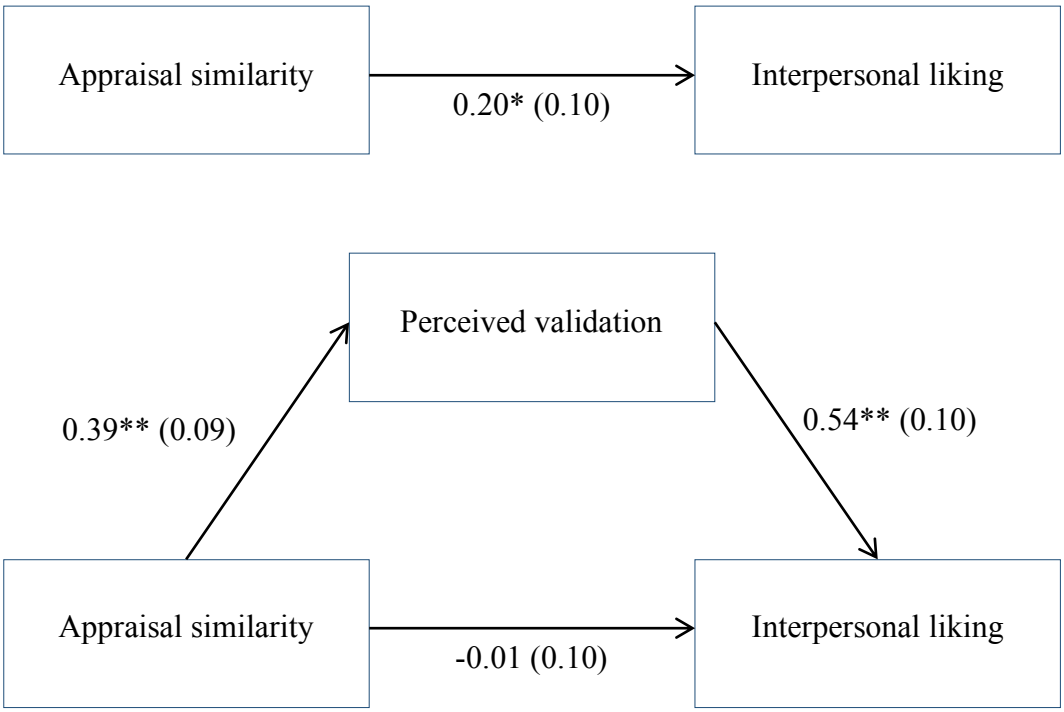


Figure 3:
Mediation analysis examining perceived validation as mediator of the effect of appraisal similarity on interpersonal liking (Experiment 3)



Note: * $p < .05$, ** $p < .001$
Standard errors are in parentheses.

Table 1:
Mediated moderation analysis examining perceived validation as mediator of the interaction effect between appraisal similarity and attitude similarity on interpersonal liking (Experiment 3)

	IV	Moderator	IV × Moderator	Mediator	Moderator × Mediator
Model 1	.20* (.10)	.38***(.10)	.27** (.10)		
Model 2	.39*** (.09)	.25** (.09)	.29** (.09)		
Model 3	.10 (.10)	1.20** (.41)	.24* (.10)	.42*** (.10)	-.23* (.10)

Note: * $p < .05$; ** $p < .01$; *** $p < .001$. In parentheses are standard errors. In Models 1 and 2, the dependent variable (DV; interpersonal liking) and mediator (perceived validation), respectively, were regressed onto the independent variable (IV; appraisal similarity), the moderator (attitude similarity), and the interaction term. In Model 3, the DV was regressed onto the IV, the moderator, the mediator, and two interaction terms involving the moderator.

Vignette in Experiment 1

Something awful has happened. A few days ago, my friends and I were having lunch at the canteen before our lessons. Gary played a joke on me by pulling my seat from under me while I was about to sit down. I fell and injured my hands. As a result, I could not take the driving test that was scheduled the next day. Even though Gary had apologized to me, I felt that he was not sincere. Today, I did the same thing to him. I did not exactly mean to hurt him; at that time, I did it on impulse and I was thinking that it would be funny. However, he hurt his back when he fell down. What is worse is that he has a basketball competition tomorrow. It seems that his back injury is quite serious and he is very unlikely to play tomorrow.

Vignette in Experiments 2 and 3

I was a member of NUSSU (National University of Singapore Student Union) and was helping the External Affair Director Raymond organize a talk on public finance by a government minister. The talk was to be held in a conference hall in a major hotel on Stamford Road on a Saturday evening. This talk is an important item on NUSSU's calendar and we had invited not just current undergraduates, but also NUS alumni and well-known members of the finance world.

Response for the talk was overwhelming and full attendance was expected. The talk was scheduled to start on 7pm that Saturday, but Raymond, knowing that people could come in late for various reasons, indicated on the invitation email and also on the acknowledgement and reminder emails to attendees to be seated by 6.45pm. On that day, while most of the attendees arrived on time, a substantial number (we estimated to be about 15%) came in late after 7pm. These late-comers walked in after the Minister started his speech, which was quite distracting.

The reasons they were late could possibly be due to the rain, which typically would slow traffic down, and probably also the fact that it was a weekend evening on a popular downtown location. Although the Minister told us later that he did not mind and that he in fact appreciated our effort in organizing the talk, I thought that things could have been done better.